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Sources of Toxic Compounds in Household Wastewater

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Sources of Toxic Compounds in Household Wastewater

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This report presents the results of a literature search into the occurrence of EPA's selected 129 priority pollutants in household wastewater and is the forerunner to further research projects designed to actually measure the concentration of toxic pollutants in domestic wastewater treatment and disposal systems. Although it is assumed that the largest contribution of toxic pollutants is from industrial discharges, the identification and concentration of these pollutants from strictly domestic wastewater sources is largely unknown. The study identifies consumer product categories and general types of products containing the toxic compounds used in and around the home which may eventually end up in the wastewater. The most frequently used products containing toxic chemicals are household cleaning agents and cosmetics. Solvents and heavy metals are the main ingredients of these products which are used on a daily basis. Deodorizers and disinfectants, containing naphthalene and phenol and chlorophenols, are also high on the frequency list. Pesticides, laundry products, paint products, polishes, and preservatives are wasted infrequently but are commonly wasted in large volumes. Thus, the fate of low level frequent discharges and high level infrequent discharges of toxic chemicals must be addressed in further research work with individual wastewater treatment systems or small community systems.

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SOURCES OF TOXIC COMPOUNDS IN HOUSEHOLD WASTEWATER

by

Steven W. Hathaway
Wastewater Research Division
Municipal Environmental Research Laboratory
Cincinnati, Ohio 45268

MUNICIPAL ENVIRONMENTAL RESEARCH LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
CINCINNATI, OHIO 45268

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FOREWORD

The Environmental Protection Agency was created because of increasing public and government concern about the dangers of pollution to the health and welfare of the American people. Noxious air, foul water, and spoiled land are tragic testimony to the deterioration of our natural environment. The complexity of that environment and the interplay between its components require a concentrated and integrated attack on the problem.

Research and development is that necessary first step in problem solution, and it involves defining the problem, measuring its impact, and searching for solutions. The Municipal Environmental Research Laboratory develops new and improved technology and systems for preventing, treating, and managing wastewater and solid and hazardous waste pollutant discharges from municipal and community sources, for preserving and treating public drinking water supplies, and for minimizing the adverse economic, social, health, and aesthetic effects of pollution. This publication is one of the products of that research and is a most vital communications link between the researcher and the user community.

This report described a literature search which identifies consumer products, containing toxic pollutants, used in an around the home. The occurrence of toxic chemicals in the household wastewater is of great concern not only for municipal wastewater treatment plant discharges but more importantly for small community systems and single dwelling wastewater treatment systems which may have an impact on the ground water quality.

Francis T. Mayo, Director
Municipal Environmental Research
Laboratory

ABSTRACT

This report presents the results of a literature search into the occurrence of EPA's selected 129 priority pollutants in household wastewater and is the forerunner to further research projects designed to actually measure the concentration of toxic pollutants in domestic wastewater treatment and disposal systems. Although it is assumed that the largest contribution of toxic pollutants is from industrial discharges, the identification and concentration of these pollutants from strictly domestic wastewater sources is largely unknown.

The study identifies consumer product categories and general types of products containing the toxic compounds used in and around the home which may eventually end up in the wastewater.

The most frequently used products containing toxic chemicals are household cleaning agents and cosmetics. Solvents and heavy metals are the main ingredients of these products which are used on a daily basis. Deodorizers and disinfectants, containing naphthalene and phenol and chlorophenols, are also high on the frequency list. Pesticides, laundry products, paint products, polishes, and preservatives are wasted infrequently but are commonly wasted in large volumes. Thus, the fate of low level frequent discharges and high level infrequent discharges of toxic chemicals must be addressed in further research work with individual wastewater treatment systems or small community systems.

This report covers a period from January 1979 to January 1980 and work was completed as of March 1980.

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SECTION 1

INTRODUCTION

Most Americans are priveleged to enjoy an abundant supply of water which is used for a variety of functions in and around the home. The amount of water used depends on the source of supply, the means of wastewater disposal, and most importantly, the family habits. An average value for the volume of water used per person each day is about 160l (42 gallons). This value includes such events as toilet flushing, bathing, laundering, washing dishes, running the garbage disposal, and general cleaning. Nearly all of these events involve the use of chemicals which are present in products and disinfectants, soaps, etc. Using these products eventually produces a chemically complex wastewater. Americans use a multiplicity of products for personal hygiene and household maintenance which contain organic and inorganic chemicals specifically tailored to do a certain job. After the products are used they become part of the daily waste flow and are forgotten. The final product, the chemically complex wastewater, is to be returned to the environment from where it came to ultimately be recycled. The ultimate goal for disposal is to produce a wastewater that has been adequately treated to remove harmful chemicals and micro-organisms which might risk human health or damage the environment. Traditional parameters such as BOD, COD, dissolved oxygen, TKN, phosphorus, total and fecal coliform are gross measurements for evidence of pollution. Although these parameters are rarely monitored in wastewater from individual homes, well-designed, and well maintained on-site treatment systems are capable of greatly reducing most of these values to low levels. The use of diverse household products, however, raises the question of toxic pollutants discharged to the waste system and the capability of removal by various on-site treatment systems. Chapter 3 of the "Innovative and Alternative Technology Assessment Manual" discusses possible alternatives for the removal of toxic compounds but does not report on the level of concentration expected to be found in household waste. The complex wastewater from a household contains very low levels of organic and inorganic compounds at the ppb concentration level which are not detected by the gross measurements of pollution and some may not be removed by conventional processes. The EPA has an extensive on-going program to identify toxic compounds in the effluent of POTWs. Under the Consent Decree (1) EPA was to develop regulations on 65 classes and specific compounds which must be considered with respect to sewage treatment plant discharge. EPA was required to publish a list of toxic pollutants concerning "the toxicity, persistence, degradability, the usual or potential presence of the affected organisms and the nature and extent of the effect of the toxic pollutant on such organisms". The actual list of 129 toxic compounds (appearing in Appendix) was developed as a result of finding analytical standards to be used as reference compounds in the analysis of water, wastewater, and sludge for toxic substances.

The first step of producing a list of priority pollutants is completed. The next step of defining the "toxicity" of these compounds is underway by a special task force set-up within EPA. The fate of the toxic compounds through the various treatment systems has only been touched upon at this date, and research efforts are beginning to question the degradability, chemical conversion, and other ways the compound can be transported or degraded out of the system (2), (3), (4). The Office of Pesticides and Toxic Substances has a group responsible for locating the sources of these compounds that are found in the wastewater and they are to eventually recommend procedures for controlling the chemical at the source (5).

Although it is assumed that industrial discharges are the major contributors of toxic compounds in municipal wastewater, the household wastewater discharge can not be ignored. Many of the consumer products used daily contain some of the toxic compounds on the EPA priority pollutant list. If a homeowner is having a chronic problem with his septic tank, he may begin using a cleaning product regularly which contains several solvents on the priority pollutants list. These low level toxic concentrations from domestic discharges are likely to go unnoticed if industrial and domestic wastes are combined into one central collection system. From this standpoint the household with an on-site waste treatment system which discharges the wastewater into a stream or subsurface into the groundwater may be an important source of pollution and a possible risk to public health. The possibility of a health risk, however, depends on a number of factors including: density of septic tank systems, distribution of wastewater, ground water level and flow, etc. There are a number of approaches to health risk assessment by various environmental contaminants but the important first step in all of these approaches is to determine the level or concentration of the contaminant present in the source. Subsequently the environmental pathway or distribution and the dose-response will then determine the degree of potential hazard. Since many rural homes have their own water supply and on-site waste disposal system, contamination of the groundwater with unsafe levels of toxic chemicals is a condition that must be avoided. If a community has a densely populated area with on-site disposal systems, so called "short circuiting" of the soil disposal system could result in ground water contamination or well water contamination (6).

There are many household products used on a continuous basis which contain some of the toxic compounds listed in EPA's list of priority pollutants. This paper identifies specific products and compounds contributing to the total wastewater flow from a home.

SECTION 2

CONCLUSIONS

This research has attempted to predict the types of products used by the typical American household that contain the toxic compounds listed in the EPA Priority Pollutants List. The ultimate goal, scientifically, is to identify the compounds actually present in the raw wastewater, detect the concentration, determine effect of the anaerobic septic tank or aerobic treatment unit, determine the effect of soil absorption, and finally determine the quality of ground water or surface water. The overlying research to determine the health and ecological effects of these compounds is being done by several researchers, both government and non-government. At the present time the toxic compounds listed in Table 5 represent the most frequently occurring compounds of the products used and wasted into domestic wastewater of small community or individual wastewater treatment systems. Obviously, not all of these compounds will be found in household wastewater since a number of factors come into play such as changes in product usage within individual homes and even entire communities, and sampling techniques which may miss low concentration peak flows of certain chemicals wasted only periodically. The overall concern is actually focused on the treated wastewater re-entering the environment. Although instances of solvents such as trichloroethylene in ground water are cropping up in several areas of this nation, it is not certain that the contamination results from disposal of domestic waste through such processes as the septic tank- soil absorption system. Further research into the existence of toxic compounds in domestic wastewater and the travel of these compounds through the soil layers to the ground water is being performed through a research grant by the University of Washington and at the RSKERL (a Cooperative Agreement) with the Ground Water Research Center.

All available literature was searched in an attempt to obtain amounts of chemicals (the most abundantly used) produced for use in consumer products. The production of these chemicals for industrial use is so high that it was impossible to predict the amount actually used or occurring in consumer products. Only a careful consumer product survey could adequately determine the amount of the chemicals used in the home.

SECTION 3

SEARCH FOR CHEMICAL SOURCES LITERATURE

Identifying Toxic Compounds

Since contamination of the household wastewater with toxic compounds was the major problem to be addressed in this study, a search of the literature was expected to provide detailed information on the production and use of each toxic compound.

Information on each of the 129 toxic compounds was needed to begin a search for household products which use various toxic chemicals for a specific job or are present as impurities in chemicals of particular products. The Chemline database was used to obtain Chemical Abstract Registry Numbers, other chemical names, synonyms, and trade names for each of the 129 compounds. Appendix A is a publication of the Chemline database output used for further investigation of the 129 toxic compounds. Databases such as Toxline and Medline do not contain information pertaining to chemical production and uses in consumer products. Therefore, other chemical sources were persued based on Chemline information of chemical names, synonyms, and trade names.

Most of the information presented in this paper was extracted from three sources of chemical reference literature: Kirk-Othmer Encyclopedia of Chemical Technology (8); Handbook of Environmental Data on Organic Chemicals (9); and Clinical Toxicology of Commercial Products (10). The Kirk-Othmer Encyclopedia was a good reference for identifying the major uses of the toxic compounds, although the number of compounds found was limited. The handbook of Environmental Data on Organic Chemicals had limited information on uses of most of the compounds. Of these three references, the Clinical Toxicology of Commercial Products Manual was the most informative for identifying commerical products. The basic purpose of this manual is to recommend products. In order to recommend specific medical treatment, the manual is set up in stepwise fashion to direct a physician or hospital personnel to the specific toxic compound responsible for acute poisoning or long-term exposure to dangerous chemicals. The Commercial products manual contains an ingredients index which has several categories of consumer products. Specific "brand name" products were given in the products section but were not arranged in easily accessible product categories.

SECTION 4

CONSUMER PRODUCTS AND GENERAL CATEGORIES

Categorizing

Categorizing consumer products commonly used in the household was accomplished by the use of a Canadian report on toxic metals (11) in wastewater. This report supplied a comprehensive list of consumer products used in and around the home. For the purpose of this paper this list was actually broken down into several categories which could be used to locate products ending up in wastewater. Some categories of consumer products were judged as not part of the home wastewater flow. The list of general categories and associated products appearing in Table 1 were extracted from the Ontario report with a few exceptions such as automotive products, caulking compounds, fuels, inks, etc. Some of the categories have been combined into fewer major groups. For instance, bleaches and dyes are combined into laundry products. There were 13 major categories identified as sources for domestic wastewater. Each major category has several types of products listed as contributors to a wastewater stream. The major categories are:

1) cleaners
2) cosmetics
3) deodorizers
4) disinfectants
5) house and garden pesticides
6) laundry products
7) ointments
8) paint and paint products
9) photographic products
10) polish
11) preservatives
12) soaps
13) medicines

Once the consumer products were identified as shown in Table 1, the ingredients index of the commercial products manual was consulted to find specific types of compounds present. In an attempt to categorize the consumer products in a more detailed fashion, the household wastewater stream was broken into eight separate events. These are: toilet flush; garbage disposal; kitchen sink; automatic dishwashing; laundry waste; bath and shower; utility sink waste; and bathroom sink. Each household event was characterized by the types of consumer products placed into the wastewater. A summary was then prepared itemizing specific compounds likely to be found in particular events.

Products

In Table 1 each of the major categories have been divided into basic products and even more detailed specific products. Although all 13 categories have been listed as typical consumer products, only a few are actually used on a routine or daily basis around the house.

Cleaners

This category of household products is used daily or as a minimum several times per week. Products normally used on a daily basis include: denture cleaner, dishwashing detergents, diaper cleaners, disinfectants, and porcelain cleaners. The products used less frequently are: metal cleaners, toilet bowl cleaner, drain pipe cleaner, general cleaner, paint cleaner-remover, rug and upholstery cleaner, sewer, cesspool, septic tank cleaner and stove and oven cleaner.

Cosmetics

The category including all types of cosmetics and personal products is the highest daily contributor of consumer products to the disposal system. Facial make-up and related products are disposed daily. Several products used in bath and shower including soap, shampoo, antiperspirant, and cologne, are used daily. Although these cosmetics are used daily, the concentration entering the wastewater is very low. Hair preparations such as hair dyes, tints, sets, and permanents are not used daily but represent a high concentration when used.

Deodorizers

Deodorizing products are used frequently in the home, but in most cases they do not become part of the wastewater flow. Aerosols or airborne deodorants do not enter the wastewater. Bathroom deodorants can enter the waste stream with every toilet flush, since some deodorant-disinfectant products are constantly dispensed in the tank or are hung inside the toilet rim.

Disinfectants

Household disinfectant products are likely to be used frequently or even daily. Many of the disinfectants are sprayed in the bathroom into or around the tub, sink, or toilet. The disinfectant becomes part of the wastewater flow only when the unit is used or rinsed out.

House and Garden Pesticides

Pesticides may enter the wastewater by indirect transport or directly. Fruits and vegetables commonly have pesticides sprayed on them to avoid damage by insects. The pesticide becomes part of the waste stream as these foods are washed in the kitchen sink or ground up in the garbage disposal. Pesticides are also commonly placed around or in basement drains or utility sinks to kill various insects and mice. Occasionally the pesticide used near sinks and drains is washed into the wastewater disposal system. Indirectly pesticides and insecticides are washed from clothes and become part of the laundry waste. The concentration level of pesticides or insecticides is undoubtedly very low in this case and possibly not detectable with present analytical methods.

Laundry Waste

Laundry products are used frequently but not daily. Several studies (13), (14) and (15), have characterized the volume of waste from clothes washing. Daily variations of clothes washing flows are significantly higher on Monday but throughout the week remain nearly constant (~ 40l/cap/day). Toxic compounds present in the laundry products will obviously be at the highest level on washday but may exhibit a rather constant concentration throughout the week.

Medical Ointments

These products are not used daily but do have rather frequent use. Foot powders and skin creams will probably occur in the wastewater seasonally as outdoor activity increases or decreases, depending on the local climate.

Paint Products

Paint and other painting products may only be wasted into the disposal system three or four times per year from a single home. However, the volume of paint products discharged is likely to be quite high compared to other products wasted on a daily basis. As much as 2-3 liters of paint, paint remover, thinner, or brush cleaner may be poured down the drain in one day's painting session. There are several types of paint normally used around the house. Antialgal and anticorrosion paints are used outside the house or in damp areas.

Photographic Products

Printing pictures is a rather popular hobby for many Americans. Most hobbyists do not recycle chemicals but usually pour spent solutions into the wastewater. The frequency of wastage is sporatic but large volumes are placed in the disposal system.

Polish

The polish category contains a broad spectrum of products. Shoe polish, furniture polish, floor wax, and various metal polishes are disposed in the wastewater system at least once per week.

Preservatives

Chemicals used as preservatives are not likely to enter the wastewater system regularly. Brush, canvas, floor, wood and waterproofing chemicals are wasted in large volumes and highly concentrated when disposal does occur. Preservatives for food and shampoo (used daily) will enter the disposal system in very low concentration.

Soap

This product is used frequently each day and may represent a fairly high concentration of toxic compounds depending on the type of soap used. Disinfectant soaps and acne soaps contain chemicals on the toxic list. Normal face, hand, and body soaps contain toxic compounds which are in the perfume.

Medicine

It is very difficult to predict the frequency of disposal for this category of products. Medicines used externally are washed off and directly enter the wastewater. Medicines taken internally may be altered or accumulated by the body. Some will not be altered and will be discharged in urine or feces.

SECTION 5

DISCUSSION OF TOXIC COMPOUNDS IN PRODUCTS

Solvents and Heavy Metals

A comprehensive list of the 129 priority pollutants and typical products containing them are given in Table 2.

The most frequent contribution of toxic compounds to the household wastewater occurs with the use of cleaning products and cosmetics. Toxic compounds in cleaning products are present in higher concentration than are found in cosmetics, but are not used as frequently. The major toxic compounds found in household cleaners are solvents. Products used often, but not daily, are: toilet bowl cleaners, drain pipe cleaners, septic tank cleaners, bath, sink, tile cleaners, stove and oven cleaners, and pet cleaners (containing pesticides). Most of these products contain solvents such as benzene, toluene, dichlorobenzene, trichloroethane, phthalates, dichloropropanes, dichloroprophylene, isophorone, trichloroethylene, carbon tetrachloride. Some cleaners; tile, tub and toilet products, contain disinfectants such as phenol and chlorophenols which are used daily. Other cleaning products, rug and upholstery cleaners, paint brush cleaners and paint thinners, are used only a few times per year. However, the volume of these cleaners placed in the wastewater in a single day may be as much as 2 to 3 liters of any of the following solvents: benzene, dichloroethane, chlorethylether, dichlorobenzene, dichloroethylene, isophorone. In addition to the solvents contained in paint cleaning products, the waste fluid contains the paint pigments of heavy metals such as: antimony, cadmium, chromium, copper, lead, mercury, nickel, and zinc.

Cosmetics used daily contain many of the toxic compounds in the 129 list. The cosmetics category contains a variety of personal products most of which are used on a daily basis. Toxic compounds contained in make-up largely consist of heavy metals (pigments), perfumes (containing aromatics) and antibacterial agents (phenol and chlorophenols). Other cosmetics used on a daily basis include shampoo, soap, shaving creams and lotions, perfumes and colognes, antiperspirants, and douches. Toxic compounds present in these products are as follows: Shampoo - antiseborrheic compounds and perfumes (benzene, dimethphenol, fluoranthene, naphthalene, PAH's, toluene, selenium); Hairdyes - nitrobenzene, Sb, Cd, Cr, Cu, Pb, Ni, Zn; Soap perfumes (containing aromatics), medicated soaps (coal tar - PAH's); shaving creams, lotions, colognes - antiseptics (chlorophenol, dichlorobenzene, phenol), perfumes (phenols, aromatics); perfumes and colognes (containing essential oils); antiperspirants - antibacterial agents (dichlorophenol, Zn), perfumes (essential oils), solvents (benezene); propellants (trichlorofluoromethane, dichlorodifluoromethane); douches - antiseptics (phenol), perfumes (essential oils); diaper cleaners - dichlorobenzene, phenol.

Products Containing Undefined Ingredients

Many consumer products list ingredients which are not clearly defined as specific compounds. A definition of some of these generally defined ingredients is necessary to understand the chemical components of some products. As an example, dandruff shampoo and eczema-psoriasis medication list coal tar, coal tar distillates, or coal tar derivates as active ingredients. The basic components of coal tar and derivatives are: benzene, toluene, xylene, phenols, cresols, naphthalene, anthracene and other polyaromatic hydrocarbons. The concentration of each chemical component is not known. Some medicinal ointments also list coal tar products as active ingredients. A major component of perfumes and scenting fragrances is "essential oils". This component contains several aromatic hydrocarbons, phenols and nitrobenzene adding various aromas to the products. Many cleaning agents contain "petroleum distillates" which are a blend of several aliphatic hydrocarbons and some aromatic compounds of various molecular weights. Petroleum distillates contain a mixture of benzene, toluene and other components found in gasoline. Petroleum naphtha and petroleum solvents have similar components but are more specific with respect to higher or lower molecular weight fractions. Mineral oils are mostly saturated hydrocarbons with a very low concentration of phenols. Mineral spirits contain aliphatic hydrocarbons similar to kerosene and a fraction of benezene, toluene, and xylene. Pine oil, which is a common ingredient for household disinfectants, contains terpenes (turpentine derivatives - not in the 129 toxics list), cyclic hydrocarbons, and phenols. The Consent Decree lists 12 additional classes of compounds not formally part of the 129 list. These classes and compounds are: acetone, n-alkanes (C_{10}-C_{30}), Biphenyl, Chlorine, diakyl ethers, dibenzofuran, diphenylether, methylethyl ketone, nitrites, secondary amines, styrene, and terpenes.

Toxic Chemicals in Preservatives

Preservatives are a component of many consumer products which are used frequently or even daily. The most frequently encountered products containing preservatives are: shampoo, canvas and textile waterproofing compounds, wood, clothing, floors, cosmetics and food. Shampoo is a product used daily which contains parachlorometacresol. Canvas and textile waterproofing compounds contain: chlorethyl vinyl ether, dichlorobenzene, pentachlorophenol, chromium, copper and mercury. Wood preservatives are mainly composed of: hexachorobenzene, parachlorometacresol, dichlorophenol, pentachlorophenol, arsenic, chromium, copper, and zinc. Clothing preservatives are usually insect repellents: naphthalene, phthalates, BHC, toxaphene. Cosmetics contain preservatives not included in the 129 list. Food contains preservatives not included in the 129 list except for traces of chloroform and acrolein.

Pesticides, Herbicides, and Insecticides

Pesticides can enter household wastewater from washing fruits and

vegetables in the kitchen sink or placing fruit and vegetable scraps in the garbage disposal. Insecticides and pesticides are often placed in utility sinks or near basement floor drains which are likely to be washed into the wastewater periodically. Indirectly, insecticides, pesticides, and herbicides are washed out of clothes and can become part of the laundry waste. The concentration of the pesticide in this case will probably be too low to measure.

Impurities and By-Products

Although Table 2 lists each priority pollutant by products and uses, the toxic compound may not be a specific commercial product additive. Many of these industrial chemicals are used in the manufacture of other more useful compounds or the compound is used strictly for industrial application. The chemicals listed in Table 2 which have no product (N.P.) listed are those which are not relevant to the household waste in terms of traceable sources. However, any of these toxic compounds may be part of the household waste stream as by-products of other chemicals and products used. Chemicals used for manufacturing rubber and plastics may leach out of an item in very low concentration especially if the item is in contact with flowing water.

Distribution of Toxic Compounds Throughout the Home

Table 3 is a tabulation of consumer products, wastewater event, and the toxic compounds expected from each event. The total wastewater flow is shown as eight events: toilet flush, garbage disposal, kitchen sink, automatic dishwasher, laundry waste, bath/shower waste, utility sink waste, and bathroom sink waste. Because of the enormous diversity of consumer products not all of the toxic compounds listed in each waste will be present in a single family house. The toxic compounds listed are probably candidates for particular events based on general formulations of generic products. From this inference, Table 4 was tabulated to summarize these toxic compounds occurring most often in a particular event. Each compound listed under a specific event occurred as an ingredient in more than one type of product. Compounds common to all the wastewater unit events are: benzene, toluene, phenol, trichloroethane, naphthalene, and nearly all inorganics. Toxic compounds listed under kitchen sink waste, utility sink waste, and toilet waste are likely to be of higher concentration than the compounds in the other event categories since the usual wastewater flow is lower and the products are disposed of more frequently (13). A home having some difficulty with the septic tank system or sewer pipe clogging is likely to have a high concentration of benzene, trichloroethane, or trichloroethylene since drain and pipe cleaners have these ingredients, along with a highly caustic inorganic such as sodium hydroxide, to help solublize grease and reduce microbial slimes.

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TABLE 1

GENERAL CATEGORIES FOR HOUSEHOLD PRODUCTS

1. Cleaners

   a. abrasive cleaner
   b. metal cleaner
   c. toilet bowl cleaner
   d. denture cleaner
   e. dishwashing detergents - solid and liquid
   f. diaper cleaners
   g. disinfectant cleaners
   h. drain pipe cleaner
   i. general cleaner
   j. paint cleaner-remover
   k. porcelain cleaner
   l. rug and upholstery cleaner
   m. sewer, cesspool, septic tank cleaner
   n. stove and oven cleaner

2. Cosmetics

   a. powders - dusting
   b. barrier creams (protective)
   c. face creams
   d. skin lotion
   e. dentifrices - liquid, paste, powder
   f. deodorants, and antiperspirants - creams, stick, roll-on, spray, gel
   g. eye make-up - pencil, cream, shadow, liner, mascara
   h. face make-up, powders, wax, creams
   i. hair preparations - dyes, tints, lacquers and sets, permanents, straighteners, cream removers
   j. mouthwash
   k. nail cosmetics - cuticle softener, bleach, whites, polish remover, polish
   l. perfumes and colognes
   m. rouge - cake, cream, liquid, paste
   n. shampoo
   o. shaving preparations
   p. lipstick

3. Deodorizers

   a. bathroom deodorant
   b. cleanser type
   c. spray type

4. Disintectants

   a. alkalis
   b. halogens
   c. phenols
   d. pine oil
   e. ammonium compounds

5. House and Garden Pesticides

   a. ants
   b. roaches
   c. termites
   d. mouse
   e. garden
   f. grass and week killer
   g. moth spray
   h. fruit trees and bushes
   i. fruits

6. Laundry Products

   a. bluing
   b. starch
   c. detergents
   d. bleach

(continued)

TABLE 1 (CONTINUED)

7. Medical Ointments

   a. skin creams
   b. foot powders and creams

8. Paint

   a. antialgae paint
   b. anticorrosion
   c. lacquers
   d. removers
   e. brush cleaner

9. Photographic Products

10. Polish

   a. general purpose
   b. metal polish
   c. wax
   d. shoe polish

11. Preservatives

   a. brush
   b. canvas
   c. floor
   d. wood
   e. waterproofing
   f. shampoo

12. Soaps

   a. hand, face, body

13. Medicine

TABLE 2

PRODUCTS AND USES OF PRIORITY POLLUTANTS

	USES	PRODUCTS
1. Acenaphthene	manufacture of insecticides, fungicides, dyes, plastics	N.P.
2. Acrolein	intermediate for chemical manufacturing, food products	fungicides, trace concentrates in modified starch
3. Acrylonitrile	chemical manufacturing	N.P.
4. Benzene	organic chemicals, solvents	fabric adhesives, antiperspirants, deodorants, detergents, oven cleaners, paint brush cleaner, dandruff remover and shampoo, tar remover, eczema and psoriasis remedies, solvents and thinners
5. Benzidine	manufacture of chemicals manufacture of rubber manufacture of dyes	N.P.
6. Carbon Tetrachloride	manufacture of chlorinated hydrocarbons, solvents, dry cleaning	household liquid degreaser, garden pesticides
7. Chlorobenzene	manufacture of chemicals, solvents	household liquid degreaser
8. 1,2,4-Trichlorobenzene	manufacture of chemicals, solvents, heat transfer	heat transfer lubricant

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
9.	Hexachlorobenzene	
	fungicide, preservatives manufacture of aromatic fluorocarbons	fungicide for wood preserving
10.	1,2-Dichloroethane	
	solvents	rug and upholstery cleaners, tar removers, wax removers
11.	1,1,1-Trichloroethane	
	solvents, manufacture of pesticides	drain and pipe cleaners, oven cleaners, shoe polish, household degreasers, deodorizers, leather dyes, photographic supplies
12.	Hexachloroethane	
	insecticides	moth repellant
13.	1,1 Dichloroethane	
	solvent	degreasers
14.	1,1,2-Trichloroethane	
	solvent	waxes, cleaning compounds, drain and pipe cleaner, shoe polish, deodorizer, dyes, photographic products
15.	1,1,2,2-Tetrachloroethane	
	solvent, fumigant	garden sprays
16.	Chloroethane	
	solvent	waxes, cleaners
17.	Bis (chloromethyl) Ether	
	manufacture of pesticides industrial	N.P.

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
18.	Bis (2-chloroethyl) Ether	
	solvents	dry cleaning chemicals, paints, thinners, varnish, paint removers, callus removers
19.	2-Chloroethyl Vinyl Ether	
	manufacture of textile coatings	waterproofing compounds
20.	2-Chloronaphtalene	
	engine oil additive	N.P.
21.	2,4,6-Trichlorophenol	
	insecticide, disinfectants	book binding glue, paste, detergents, household disinfectants, toilet bowl cleaners, acne creams, housepaint, laundry starch, swimming pool disinfectant
22.	P-Chloro-M-Cresol	
	germicides, preservatives	glue preservative, paint preservative, wood preservative, shampoo
23.	Chloroform	
	solvent, medical, food processing, preservatives	liniments, solvent for sweetener manufacturing, household liquid degreaser, cough medicine
24.	2-Chlorophenol	
	fungicide, bactericide, antiseptics, disinfectants	detergents, household cleaners, disinfectants, toilet bowl cleaners, house paint, swimming pool water treatment, acne creams
25.	1,2-Dichlorobenzene	
	solvent, polish, pesticides, herbicides, preservatives, disinfectants	waxes, shoe polish, canvas preservative, toilet bowl cleaner, cleansing lotions, deodorizer, diaper cleaners, leather dyes, upholstery cleaner, metal polish

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
26.	1,3-Dichlorobenzene	
	solvent, insecticides, disinfectants, preservatives	waxes, shoe polish, canvas preservative, deodorizer, upholstery and rug cleaner, household disinfectants
27.	1,4-Dichlorobenzene	
	insecticides, solvents cleaners, dyes, disinfectants	fruit spray (apples, peaches, vegetables, grapes, berries, citrus, mushrooms, nuts) household cleaners, bathroom deodorants, toilet bowl cleaner, spray household deodorants, diaper cleaner, fabric dyes, upholstery and rug cleaner
28.	3,3-Dichlorobenzidine	
	manufacture of dyes	N.P.
29.	1,1-Dichloroethylene	
	plasticizer	N.P.
30.	1,2-Dichloroethylene	
	solvent, cleaners	contact cement, perfumes, make-up (perfume), upholstery and rug cleaner
31.	2,4-Dichlorophenol	
	germacides, insecticides, preservatives, cosmetic	wood preservatives, moth repellant, insect repellant, household cleaners, deodorants, antiperspirants
32.	1,2-Dichloropropane	
	solvent, cleaners	tar removers, wax, degreaser, scouring compounds
33.	1,3-Dichloropropylene	
	manufacture of fumigants, solvent cleaners	scouring compound, wax, tar remover

(continued)

TABEL 2 (CONTINUED)

	USES	PRODUCTS
34.	2,4-Dimethyphenol (2,4-xylenol)	
	solvent, manufacture of pesticides, manufacture of surfactants, coal tar ingredient, manufacture of plastics	asphalt products, antiseborrheic preparation, detergents, shampoo eczema and psoriasis remedies, plasticizer, athlete's foot remedies
35.	2,4-Dinitrotoluene	
	manufacture of TNT	N.P.
36.	2,6-Dinitrotoluene	
	manufacture of TNT	N.P.
37.	1,2-Diphenyl Hydrazine	
	manufacture of chemicals	N.P.
38.	Ethylbenzene	
	solvent, manufacture of plastic	N.P.
39.	Fluoranthene	
	coal tar ingredient	antibiotic creams, antiseborrheic preparations, athletes foot remedies, dandruff shampoo, eczema and psoriasis remedies
40.	4-Chlorophenyl Phenyl Ether	
	electric components	dielectric fluid
41.	4-Bromophenyl Phenyl Ether	
	electric components	N.P.
42.	Bis (2-Chloroisopropyl) Ether	
	solvent, manufacture of dyes, manufacture of textiles	wax, paint remover, degreaser

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
43.	Bis (2-Chloroethoxy) Methane	
	manufacture of adhesives, sealants	N.P.
44.	Methylene Chloride	
	solvents, manufacture of plastics, cleaners	oven cleaners, tar removers, wax, degreaser, spray deodorants
45.	Methyl Chloride	
	manufacture of chemicals, manufacture of herbicides, low temperature solvents	N.P.
46.	Methyl Bromide	
	manufacture crop fumigant (agricultural)	N.P.
47.	Bromoform	
	solvent, manufacture of pharmaceuticals	waxes, greases, oils
48.	Dichlorobromomethane	
	fire extinguisher fluid, solvent, chlorination of drinking water	drinking water, waxes, greases, etc.
49.	Trichlorofluoromethane	
	propellant for aerosols	perfumes, deodorants
50.	Dichlorodifluoromethane	
	propellant for aerosols	perfumes, deodorants
51.	Chlorodibromemethane	
	propellant for aerosols	perfumes, deodorants, fire extinguishers

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
52.	Hexachlorobutadiene	
	solvent, by-product of trichloroethylene manufacturing	low concentration in general purpose solvents
53.	Hexachlorocyclopentadiene	
	manufacture of pesticides	N.P.
54.	Isophorone	
	solvent, manufacturing of pesticides	household degreasers, tar remover, wax remover, paint remover, thinner
55.	Naphthalene	
	manufacture pesticides, insecticides, coal tar ingredient	antiseborrheic preparation, bathroom deodorants, pet cleaners, detergents, upholstery and rug cleaners, shampoo, eczema and psoriasis remedies, moth repellant
56.	Nitrobenzene	
	manufacture of dyes, solvent	textiles, dyes, shoe polish, hair dye, degreaser
57.	Nitrophenol	
	manufacture of dyes, manufacture of chemicals	N.P.
58.	4-Nitrophenol	
	manufacture of pesticides	N.P.
59.	2,4-Dinitrophenol	
	manufacture pesticides, manufacture fungicides, preservatives	photographic products
60.	4,6-Dinitro-O-Cresol	
	pesticide	tree sprays

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
61.	N-Nitrosodimethylamine	
	manufacture of dyes	N.P.
62.	N-Nitrosodiphenylamine	
	manufacture of rubber	rubber products
63.	N-Nitrosodi-N-Propylamine	
	manufacture of organic chemistry	N.P.
64.	Pentachlorophenol	
	preservative	wood preservative, canvas preservative
65.	Phenol	
	disinfectants, antiseptics, medical ointments, perfumes	general purpose glue, fabric adhesives, antibiotic creams, flavor oils, athlete's foot remedies, baby preparations, bed bug pesticides, laundry products, callus and corn removers, pet cleaners, drain and pipe cleaners, paint brush cleaner douches, eczema and psoriasis remedies, hemmorrhoidal preparations, house paint, liniments, shaving creams and lotions, pine oil, household disinfectants
66.	Bis (2-Ethylhexyl) Phthalate	
	plastics, chemicals, pesticides	plasticizer, gasoline, synthetic lubricants, insect repellants, cosmetics, fragrances
67.	Butylbenzyl Phthalate	
	plastics, chemicals, pesticides	plasticizer, gasoline, synthetic lubricants, insect repellants, cosmetics, fragrances
68.	Di-N-Butyl Phthalate	
	plastics, chemicals, pesticides	plasticizer, gasoline, synthetic lubricants, insect repellants, cosmetics, fragrances, china cement

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
69.	Dioctyl Phthalate	
	plastics, chemicals, pesticides	plasticizer, gasoline, synthetic lubricants, insect repellants, cosmetics, fragrances, china cement
70.	Diethyl Phthalate	
	solvent, perfumes, insect repellant, plasticizer	food packaging, perfumes, mosquito repellant, fabric glue, make-up powder, silver polish, nail polish
71.	Dimethyl Phthalate	
	solvent, perfumes, insect repellant, plasticizer	food packaging, perfumes, mosquito repellant, fabric glue, make-up powder, silver polish, nail polish
72.	Benzo (a) Anthracene (1,2 Benzanthracene)	
	coal tar ingredient, cigarette smoke	antiseborrheic preparation, dandruff shampoo, eczema and psoriasis remedies, asphalt products
73.	Benzo (a) Pyrene (3,4 Benzopyrene)	
	coal tar ingredient, cigarette smoke	antiseborrheic preparation, dandruff shampoo, eczema and psoriasis remedies, asphalt products
74.	3,4 Benzofluoranthene	
	coal tar ingredient, cigarette smoke	antiseborrheic preparation, dandruff shampoo, eczema and psoriasis remedies, asphalt products
75.	11,12 Benzofluoranthene	
	coal tar ingredient, cigarette smoke	antiseborrheic preparation, dandruff shampoo, eczema and psoriasis remedies, asphalt products
76.	Chrysene	
	coal tar ingredient cigarette smoke	antiseborrheic preparation, dandruff shampoo, eczema and psoriasis remedies, asphalt products

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
77. Acenaphthylene	manufacture dyes, manufacture plastics, manufacture pesticides	no direct use
78. Anthracene	coal tar ingredient, manufacture dyes	same as other PAH's
79. Benzo (Ghi) Perylene (1,12-Benzoperylene)	same as other PAH	same as other PAH
80. Fluorene	same as other PAH	same as other PAH
81. Phenanthrene	same as other PAH	same as other PAH
82. Dibenzo (a,h) Anthracene	same as other PAH	same as other PAH
83. Indeno (1,2,3-cd) Pyrene	same as other PAH	same as other PAH
84. Pyrene	same as other PAH	same as other PAH
85. Tetrachloroethylene (Perchloroethylene)	solvent, pesticide	contact cement, degreasers, wax removers, shoe dye, shoe polish, garden (vegetable) pesticide, upholstery and rug cleaner
86. Toluene	solvents, cleaning, cosmetics, manufacture of saccharin	contact cement, detergents, paint brush cleaner, perfume, degreasers, dandruff shampoo

(continued)

TABLE 2 (CONTINUED)

USES	PRODUCTS
87. Trichloroethylene	
solvent	upholstery, cleaner, degreaser, tar remover, waxes
88. Vinyl Chloride (Chloroethylene)	
PVC resins manufacture	PVC pipe, PVC pipe glue, contact cement
89. Aldrin	
insecticide, pesticide	used on bush and vine fruits, citrus fruits, cucurbits, nuts, pome fruits, stone fruits, tropical fruits, vegetables, animal bait
90. Dieldrin	
insecticides	used on bush and vine fruits, citrus fruits, cucurbits, nuts, pome fruits, stone fruits, tropical fruits, vegetables, animal bait
91. Chlordane	
insecticides	used on bush and vine fruits, citrus fruits, cucurbits, nuts, pome fruits, stone fruits, tropical fruits, vegetables, animal bait
92. 4,4' DDT	
not currently used by homeowners--industrial only	insect repellants
93. 4,4' DDE	
impurity in DDT	
94. 4,4' DDD	
impurity in DDT	
95. Endosulfan-Alpha	
pesticides	acaricides, industrial insecticide

(continued)

TABLE 2 (CONTINUED)

USES	PRODUCTS
96. Endosulfan-Beta	
pesticides	acaricides, industrial insecticide
97. Endosulfan Sulfate	
pesticides	acaricides, industrial insecticide
98. Endrin	
pesticides	insecticides, rodenticides
99. Endrin Aldehyde	
pesticides	insecticides, rodenticides
100. Heltachlor	
pesticides	insecticides, rodenticides
101. Heptachlor Epoxide	
pesticides	insecticides, rodenticides
102. BHC-Alpha	
pesticides	industrial insecticide, home insecticide, fungicide, insect repel'ant
103. BHC-Beta	
pesticides	industrial insecticides, home insecticide, fungicide, insect repellant
104. BHC-Gamma	
pesticides	industrial insecticides, home insecticide, fungicide, insect repellant
105. BHC-Delta	
pesticides	industrial insecticides, home insecticide, fungicide, insect repellant

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
106.	PCB 1242	
	electric components, automotive, asphalt, inks, plastics	miscellaneous electrical appliances
107.	PCB 1254	
	electric components, automotive, asphalt, inks, plastics	miscellaneous electrical appliances
108.	PCB 1221	
	electric components, automotive, asphalt, inks, plastics	miscellaneous electrical appliances
109.	PCB 1232	
	electric components, automotive, asphalt, inks, plastics	miscellaneous electrical appliances
110.	PCB 1248	
	electric components, automotive, asphalt, inks, plastics	miscellaneous electrical appliances
111.	PCB 1260	
	electric components, automotive, asphalt, inks, plastics	miscellaneous electrical appliances
112.	PCB 1060	
	electric components, automotive, asphalt, inks, plastics	miscellaneous electrical appliances
113.	Toxaphene	
	pesticides	insecticides, fungicide, insect repellant

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
114. Antimony (Total)		
	electronic applications, semi-conductor, dye industry, fireworks and matches, medicines, paints	drugs for care of parasitic diseases, paint pigments
115. Arsenic		
	agricultural, electrical, medicine	cotton plant defoliant, weed killer, wood preservatives, cattle and sheep dip, aquatic weed control, electronic--semi-conductors, medicine--treatment for amebic dysentery
116. Asbestos (Fibrous)		
	floor tiles, building products, flames resistant products, automotive brake linings, wine, juices, beer, whiskey	paints, caulking compositions, textiles
117. Beryllium		
	inertial guidance systems, casting materials	aircraft wing coating no consumer products
118. Cadmium		
	aluminum soldering, manufacture of plastic, fungicide, photography	solder, lawn treatment, luminescent materials, photo chemicals, textile printing, batteries, ascaricide, paints, pigments
119. Chromium		
	various metallic applications	abrasives, tanning chemicals, water repellant textiles, pigments, photo chemicals, textile printing, paints, wood preservatives
120. Copper		
	plumbing, electrical	fungicides, pigments, textile preservatives, wood preservatives, varnish, paint, photo chemicals

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
121. Cyanide (Total)	manufacture of organic chemicals manufacture of dyes, pesticides	black cyanide (insecticide, rodenticide) blue dyes
122. Lead	electrical, plumbing	batteries, pigments, paints, glaze, stabilizers for plastic, matches
123. Mercury	agriculture, amalgamation, catalysts, dental preparations, electrical laboratory, paint products, paper manufacture, pharamaceuticals (medicines)	insecticides and rodenticides, weed killers, textile preservatives, batteries, antiseptic, pearlescent paint
124. Nickel	alloys, plating, catalysts, ceramics, textiles	coins, jewelry , zippers, plumbing fixtures, corrosion, coverings, dyes, pigments, PVC pigment, fungicide for vegetables, photographic, skin treatment, diuretics, ointments (skin, eyes), crabgrass control
125. Selenium	electrical, optical, Xerox copy machines, manufacture glass and porcelain, color for glass and plastics, manufacture of rubber lubricants	photographic chemicals, silver compound antiseptics
126. Silver	photography, electrical, silverware, jewelry, mirror coatings, medicines, fungicides	photographic chemicals, silver compound antiseptics
127. Thallium	no commercial uses, rodenticide (not for home use)	

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
128.	Zinc	
	zinc galvanizing, ceramics (colors), medical, vulcanizing rubber, manufacture of textiles (rayon)	luminescent materials, pigments, rubber compounding, ointments (antiseptic), deodorant, disinfectants, paint, wood preservative
129.	2,3,7,8-Tetrachlorodibenzo-P-Dioxin (TCDD)	
	impurity in 2,4,5 T	pesticide

TABLE 3

DISTRIBUTION OF COMMON CONSUMER PRODUCTS

CONSUMER PRODUCTS	TOXIC COMPOUND
Toilet Flush	
medical-ointments	benzene, bis (2-chloroethyl) ether, 2,4,6-trichlorophenol, chloroform, 2-chlorophenol, 2,4-dimethylphenol, napthalene, phenol, antimony, Cu, Hg, Zn, arsenic Cd
disinfectants	2,4,6-trichlorophenol, 2-chlorophenol, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, phenol, Hg
deodorizer	benzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 2,4-dichlorophenol, methylene chloride, trichlorofuoromethane, dichlorodifluoromethane, chlorodibromomethane, naphthalene, Zn
cleaner	benzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, chloroethane, 2,4,6-trichlorophenol, 2-chlorophenol, 1,2-cichlorobenzene, 1,4-dichloropropane, 1,3-dichloropropylene, phenol, Cr, Cu, Zn
Garbage Disposal	
pesticides	carbon tetrachloride, 1,1,2,2-tetrachloroethane, tetrachloroethylene, aldrin, dieldrin, chlordane, 1,4-dichlorobenzene, arsenic, Cd, Cr, Cu, Pb, Hg, Zn, cyanide
deodorizer	benzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 2,4-dichlorophenol, methylene chloride, trichlorofluoromethane, dichlorodifluoromethane, naphthalene, Zn

(continued)

TABLE 3 (CONTINUED)

Kitchen Sink	
hand soaps and cleaners	1,2-dichloroethylene, phenol, diethylphthalate, dimethylphthalate, toluene, asbestos
polish	1,2-dichlorobenzene, 1,2-dichloroethane, chloroethane, 1,3-dichlorobenzene, 1,2-dichloropropane, 1,3-dichloropropylene, methylene chloride, bromoform, dichlorobromomethane, isophorone, diethylphthalate, dimethylphthalate, tetrachloroethylene, trichloroethylene, Zn
pesticides	carbon tet, 1,1,2,2-tetrachloroethane, tetrachloroethylene, aldrin, dieldrin, chlordane, 1,4-dichlorobenzen, arsenic, Cd, Cr, Cu, Pb, Hg, Zn, cyanide
cosmetics	benzene, p-chloro-m-cresol, 2,4-dimethylphenol, napthalene, phenol, PAH's, toluene, 1,2-dichlorobenzene antimony, Cd, Cu, Pb, Hg, Ni, Ag, Zn
cleaners	benzene, carbon tet, chlorobenzene, 1,2-dichloroethane, 1,1,1-trichloroethane, 1,1-dichloroethane, chloroethane chloroform, 2-chlorophenol, 1,2-dichlorobenzene, 1,3-dichlorobenzene,1,4-dichlorobenzene, 1,2-dichloroethylene, 2,4-dichlorophenol, 1,2-dichloropropane, 1,3-dichloropropylene, bis (2-chloroisopropyl) ether, methylene chloride, hexabutadiene, isophorone, napthalene, nitrobenzene, phenol, tetrachloroethylene, toluene, trichloroethylene, Cr, Cu, Zn
Automatic Dishwasher Waste	
detergents	benzene, 2,4,6-trichlorophenol, 2-chlorophenol, 2,4-dimethylphenol, napthalene, phenol, toluene
silver polish	diethylphthalate, dimethyl, phthalate, Ag

(continued)

TABLE 3 (CONTINUED)

Laundry Waste

polish (laundered clothes soiled with polish)	1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2,2-tetrachloroethane, chloroethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,2-dichloropropane, 1,3-dichloropropylene, bis (2-chlorisopropyl) ether, methylene chloride, bromoform, dichlorobromomethane, isophorone, nitrobenzene, tetrachloroethylene, trichloroethylene
fabric adhesives	benzene, phenol, diethylphthalate, dimethylphthalate
dyes and textile coatings	1,1,1-trichloroethane, 1,1,2-trichloroethane, 2-chloroethyl vinyl ether, 1,2-dichlorobenzene, 1,4-dichlorobenzene, nitrobenzene, asbestos, cyanide
medical ointments	benzene, bis (2-chloroethyl) ether, 2,4,6-trichlorophenol, chloroform, 2-chlorophenol, 2,4-dimethylphenol, fluoranthene, napthalene, phenol, PAH's, Hg, Zn
laundry products	2,4,6-trichlorophenol, 2-chlorophenol, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 2,4-dimethylphenol, napthalene, toluene
pesticides and insecticides	carbon tet, hexachloroethane, 1,1,2,2-tetrachloroethane, 2,4,6-trichlorophenol, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 2,4-dichlorophenol, naphthalene, bis (2-ethylhexyl) phthalate, diethylphthalate, dimethylphthalate, tetrachloroethylene, aldrin, dieldrin, chlordane, heptachlor, BHC's, toxaphene, arsenic, Cd, Cr, Cu, Pb, Hg, Zn, cyanide
disinfectants	2,4,6-trichlorophenol, 2-chlorophenol, phenol, Hg
bleach and starch	2,4,6-trichlorophenol, Hg

(continued)

TABLE 3 (CONTINUED)

Bath and Shower Waste	
soaps (perfumed)	1,2-dichloroethylene, phenol, diethylphthalate, dimethyl-phthalate, toluene
medical ointments	benzene, bis (2-chloroethyl) ether, 2,4,6-trichlorophenol, chloroform, 2-chlorophenol, 2,4-dimethyphenol, fluoranthene, napthalene, phenol, PAH's, Cu, Hg, Zn
shampoo	benzene, p-chloro-m-cresol, 2,4-dimethylphenol, fluoranthene, napthalene, PAH's, toluene, Cd, Cu, Pb, Ni, Ag, Zn
disinfectants	1,1,2-trichloroethane, chloroethane, 2,4,6-trichlorophenol, 2-chlorophenol, 1,4-dichlorobenzene, 2,4dichlorophenol, 1,2-dichloropropane, 1,3-dichloropropylene, naphthalene, phenol, Hg
cosmetics (make-up, anti-perspirants) (hair dyes)	benzene, 1,4-dichloroethylene, 2,4-dichlorophenol, nitrobenzene, bis (2-ethylhexyl) phthalate, butylbenzylphthalate, diethylphthalate, dimethylphthalate, antimony, Cd, Cu, Pb, Hg, Ni, Se, Ag, Zn
Utility Sink Waste	
preservatives and dyes	hexachlorobenze, 1,1,1-trichloroethane, 2-chloroethyl vinyl ether, p-chloro-m-cresol, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 2,4-dichlorophenol, pentachlorophenol, Cd, Cr, Cu, Db, Ni, asbestos, cyanide
polish	1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, nitrobenzene, diethylphthalate, dimethylphthalate, Zn
photographic products	1,1,1-trichloroethane, 1,1,2-trichloroethane, 2,4-dinitrophenol, Cr, Pb, Hg, Ag

(continued)

TABLE 3 (CONTINUED)

paint products	benzene, bis (2-chloroethyl) ether, 2,4,6-trichlorophenol, 2-chlorophenol, bis (2-chlorosopropryl) ether, iosphorone, phenol, toluene, antimony, arsenic, Cd, Cr, Cu, Pb, Hg, Ni, Se Zn, asbestos
pesticides	carbon test, 1,1,2-tetrachloroethane, tetrachloroehylenes, albrin, dieldrin, chlordane, endrin, heptachlor, BHC, toxaphene, TCDD, arsenic, Cd, Cr, Cu, Pb, Hg, Zn, cyanide
cleaners	1,1,1-trichloroethane, 1,1,2-trichloroethane, Cr, Zn
bleach	2,4,6-trichlorophenol
Bathroom Sink Waste	
medicine	benzene, bis (2-chloroethyl) ether, 2,4,6-trichlorophenol, chloroform, 2-chlorophenol, 2,4-dimethylphenol, fluoranthene, naphthalene, phenol, PAH's, antimony, arsenic, Cu, Hg, Zn
soaps (hard and body)	1,2-dichloroethylene, phenol, diethylphthalate, dimethylphthalate, toluene
disinfectants	2,4,6-trichlorophenol, 2-chlorophenol, phenol, Hg
cosmetics	p-chloro-m-creso, 1,2-dichlorobenzene, phenol, bis (2-ehtylhexyl) phthalate, diethylphthalate, dimethylphthalate, antimony, Cd, Cu, Pb, Hg, Zn
shampoo	benzene, p-chloro-m-cresol, 2,4,-dimethylphenol, fluoranthene, naphthalene, PAH's, toluene, Cd, Cu, Ag, Zn
cleaner	1,1,1-trichloroethane, 1,1,2-trichloroethane, Cu

(continued)

TABLE 3 (CONTINUED)

Compounds in Waste Flow not Specifically Added as a Product to the Waste Flow

public chlorinated drinking water	carbon tet, dichlorobromomethane
PVC water supply piping	bis (2-ethylhexyl) phthalate, tetrachloroethylene, toluene, vinyl chloride

TABLE 4

TOXIC COMPOUND DISTRIBUTION IN HOUSEHOLD WASTE EVENTS

Toilet Flush

benzene (4)
phenol (65)
2,4,6-trichlorophenol (21)
2-chlorophenol (24)
1,2-dichlorobenzene (25)
1,3-dichlorobenzene (26)
1,4-dichlorobenzene (27)
1,1,1-trichloroethane (11)
1,1,2-trichloroethane (14)
Naphthalene (55)
Sb (114), Cu (120), Hg (123)
Zn (128), Cr (119)
Trichloroethylene (87)
1,2-dichloroethane (10)

Kitchen Sink

phenol (65)
toluene (86)
1,2-dichlorobenzene (25,26,27)
1,3-tetrachloroethylene (85)
1,2-dichloroethylene (30)
diethylphthalate (70)
dimethylphthalate (71)
1,2-dichloroethane (10)
1,1,2,2-tetrachloroethane (15)
1,2-dichloropropane (32)
1,2-dichloropropylene (33)
isophorone (54)
trichloroethylene (87)
carbon tetrachloride (6)
arsenic (115)
Cd (118), Cr (119)
Cu (120), Pb (122)
Hg (123), Zn (128)
Sb (114), Ni (124)
Ag (126)

Garbage Disposal

1,4-dichlorobenzene (27)
aldrin (89)
dieldrin (90)
chlordane (91)
arsenic (115)
Cd (118)
Cr (119)
Cu (120)
Pb (122)
Hg (123)
Zn (128)

Automatic Dishwasher

phenol (65)
benzene (4)
toluene (86)
2,4,6-trichlorophenol (21)
Ag (126)

Laundry Waste

2,4,6-trichlorophenol (21)
1,2-dichlorobenzene (35)
benzene (4)
phenol (65)
1,4-dichlorobenzene (27)
2,4-dimethylphenol (34)
naphthalene (55)
1,1,1-trichloroethane (11)
1,1,2,2-tetrachloroethane (15)
1,3-dichlorobenzene (26)
nitrobenzene (56)
tetrachloroethylene (85)
diethylphthalate (70)
dimethylphthalate (71)
chlorophenol (24)
arsenic (115)
Cd (118), Cr (119), Cu (120),
Pb (122), Hg (123), Zn (128)

( ) denotes number of toxic compound on Priority Pollutant List - Appendix

(continued)

TABLE 4 (CONTINUED)
Utility Sink

1,1,1-trichloroethane (11)
1,1,2-trichloroethane (14)
1,2-dichlorobenzene (25)
2,4,6-trichlorophenol (21)
trichloroethylene (87)
arsenic (115), Sb (114)
Cd (118), Cr (119), Cu (120),
Pb (122), Hg (123), Ni (124),
Sc (125), Zn (128), Ag (126)

Bathroom Sink

phenol (65)
toluene (86)
benzene (4)
2,4,6-trichlorophenol (21)
2-chlorophenol (24)
p-chloro-m-cresol (22)
2,4-dimethylphenol (34)
fluoranthene (39)
naphthalene (55)
PAH's (72)
diethylphthalate (70)
dimethylphthalate (71)
Sb (114), Cd (118), Cu (120),
Pb (122), Hg (123), Ag (126),
Zn (128), As (115)

Bath/Shower

phenol (165)
benzene (4)
naphthalene (55)
1,2-dichloroethylene (30)
diethylphthalate (70)
dimethylphthalate (71)
toluene (86)
2,4,6-trichlorophenol (21)
2-chlorophenol (24)
2,4-dimethylphenol (34)
fluoranthene (39)
PAH's (72)
2,4-dichlorophenol (31)
Sb (114), Cd (118), Cu (120),
Pb (122), Hg (123), Ni (124),
Se (125), Ag (126), Zn (128)

( ) denotes number of toxic compound on Priority Pollutant list - Appendix

TABLE 5

PREDICTED PRIORITY POLLUTANTS IN HOUSEHOLD WASTEWATER*

Organics	Inorganics
benzene	arsenic
phenol	cadmium
2,4,6-trichlorophenol	chromium
2-chlorophenol	copper
1,2-dichlorobenzene	lead
1,4-dichlorobenzene	mercury
1,1,1-trichloroethane	zinc
naphthalene	antimony
toluene	silver
diethylphthalate	
dimethylphthalate	
trichloroethylene	
aldrin	
dieldrin	

*Compounds chosen for this table are a result of an arbitrary selection method. Those compounds listed in at least three household events (Table 4) are predicted to occur in household wastewater in measurable quantities. Other solvents not listed may occur depending on locality and frequency of use.

APPENDIX

CHEMLINE INFORMATION

for

EPA Effluent Guidelines Division List

of

Priority Pollutants for B.A.T. Revision Studies

CHEMLINE ABBREVIATIONS

RN - Chemical Abstracts Service Registry Number

MF - Molecular Formula

N1 - Chemical Abstracts Preferred Nomenclature, 9th Collective Index

N2 - Same, for the 8th Collective Index

SY - Synonyms or Trade Names

PRIORITY POLLUTANTS FOR B.A.T. REVISION STUDIES

COMPOUND NAME

1. *ACENAPHTHENE

RN - 83-32-9
MF - C12-H10
N1 - ACENAPHTHENE (8CI)
N1 - ACENAPHTHYLENE, 1,2-DIHYDRO- (9CI)
SY - 1,2-DIHYDROACENAPHTHYLENE
SY - PERI-ETHYLENENAPHTHALENE
SY - 1,8-ETHYLENENAPHTHALENE
SY - NAPHTHYLENEETHYLENE

2. *ACROLEIN

RN - 107-02-8
ON - SEE ALSO: 25314-61-8
MF - C3-H4-O
N1 - ACROLEIN (8CI)
N1 - 2-PROPENAL (9CI)
SY - ACRYLALDEHYDE
SY - ACRYLIC ALDEHYDE
SY - ALLYL ALDEHYDE
SY - AQUALIN
SY - PROPENAL
SY - PROP-2-EN-1-AL
SY - 2-PROPEN-1-ONE
SY - NSC 8819
MH - *ACROLEIN/(MINOR IN 73)

3. *ACRYLONITRILE

RN - 107-13-1
ON - SEE ALSO: 29754-21-0
ON - SEE ALSO: 43690-95-5
ON - SEE ALSO: 43690-96-6
MF - C3-H3-N
N1 - ACRYLONITRILE (8CI)
N1 - 2-PROPENENITRILE (9CI)
SY - ACRYLON
SY - CARBACRYL
SY - CYANOETHYLENE
SY - FUMIGRAIN
SY - PROPENENITRILE
SY - VCN
SY - VINYL CYANIDE
SY - VENTOX
MH - NITRILES/(71-
MH - VINYL COMPOUNDS/(73-75)

4. *BENZENE

RN - 71-43-2
ON - SEE ALSO: 54682-86-9
MF - C6-H6
Nl - BENZENE (9CI)
SY - BENZOL
SY - COAL NAPHTHA
SY - CYCLOHEXATRIENE
SY - PHENE
SY - PHENYL HYDRIDE
SY - PYROBENZOL
SY - BENZOLE
SY - PYROBENZOLE
SY - (6) ANNULENE

5. *BENZIDINE

RN - 92-87-5
ON - SEE ALSO: 56481-94-8
MF - C12-H12-N2
Nl - BENZIDINE (8CI)
Nl - (1,1'-BIPHENYL)-4,4'-DIAMINE (9CI)
SY - 4,4'-BIPHENYLDIAMINE
SY - C.I. AZOIC DIAZO COMPONENT 112
SY - 4,4'-DIAMINOBIPHENYL
SY - P-DIAMINODIPHENYL
SY - 4,4'-DIPHENYLENEDIAMINE
SY - FAST CORINTH BASE B
SY - 4,4'-BIANILINE
SY - 4,4'-DIAMINODIPHENYL

6. *CARBON TETRACHLORIDE (TETRACHLOROMETHANE)

RN - 56-23-5
MF - C-CL4
Nl - CARBON TETRACHLORIDE (8CI)
Nl - METHANE, TETRACHLORO- (9CI)
SY - BENZINOFORM
SY - NECATORINA
SY - PERCHLOROMETHANE
SY - TETRACHLOROMETHANE
SY - CARBON CHLORIDE (CCL4)
SY - FREON 10
SY - TETRAFINOL
SY - TETRAFORM
SY - CARBONA
SY - TETRASOL
SY - FLUKOIDS
SY - UNIVERM
SY - VERMOESTRICID

*CHLORINATED BENZENES (other than DICHLOROBENZENES)

7. CHLOROBENZENE

RN - 108-90-7
ON - SEE ASLO: 50717-45-8
MF - C6-H5-CL
N1 - BENZENE, CHLORO- (9CI)
SY - CHLOROBENZENE
SY - MCB
SY - MONOCHLOROBENZENE
SY - PHYENYL CHLORIDE

8. 1,2,4-TRICHLOROBENZENE

RN - 120-82-1
MF - C6-H3-CL3
N1 - BENZENE, 1,2,4-TRICHLORO- (9CI)
SY - UNSYM-TRICHLOROBENZENE
SY - 1,2,4-TRICHLOROBENZENE
SY - 1,2,4-TRICHLOROBENZOL
SY - 1,2,5-TRICHLOROBENZENE

9. HEXACHLOROBENZENE

RN - 118-74-1
MF - C6-CL6
N1 - BENZENE, HEXACHLORO- (9CI)
SY - BUNT-CURE
SY - BUNT-NO-MORE
SY - ANTICARIE
SY - HCB
SY - HEXACHLOROBENZENE
SY - JULIN'S CARBON CHLORIDE
SY - NO BUNT
SY - NO BUNT 40
SY - NO BUNT 80
SY - NO BUNT LIQUID
SY - PERCHLOROBENZENE
SY - SANOCIDE
SY - AMATIN
SY - CO-OP HEXA
SY - PENTACHLOROPHENYL CHLORIDE
SY - SNIECIOTOX
MH - CHLORINE/(73)
MH - BENZENE DERIVATIVES/(73)
MH - *HEXACHLOROBENZENE/(MINOR 75)
MH - CHLOROBENZENES/(74)

*CHLORINATED ETHANES (including 1,2-DICHLOROETHANE, 1,1,1-TRICHLOROETHANE and HEXACHLOROETHANE)

10. 1,2-DICHLOROETHANE

RN - 107-06-2
ON - SEE ALSO: 52399-93-6
MF - C2-H4-CL2
N1 - ETHANE, 1,2-DICHLORO- (9CI)
SY - BROCIDE
SY - SYM-DICHLOROETHANE
SY - ALPHA, BETA-DICHLOROETHANE
SY - 1,2-DICHLOROETHANE
SY - DUTCH LIQUID
SY - ETHYLENE CHLORIDE
SY - ETHYLENE DICHLORIDE
SY - GLYCOL DICHLORIDE
SY - 1,2-BICHLOROETHANE
SY - FREON 150
MH - CHLORINE/(74)
MH - *ETHYLENE DICHLORIDES/(MINOR 76)
MH - HYDROCARBONS, HALOGENATED/(73)
MH - HYDROCARBONS, CHLORINATED/(75)
MH - ETHANE/(74-75)

11. 1,1,1-TRICHLOROETHANE

RN - 71-55-6
MF - C2-H3-CL3
N1 - ETHANE, 1,1,1-TRICHLORO- (9CI)
SY - CHLOROTHENE
SY - METHYLCHLOROFORM
SY - ALPHA-TRICHLOROETHANE
SY - 1,1,1-TRICHLOROETHANE
SY - AEROTHENE TT
SY - CHLORTEN
SY - INHIBISOL
SY - TRICHLOROETHANE
SY - CHLOROTHENE NU
SY - METHYLTRICHLOROMETHANE
SY - CHLOROTHENE VG
SY - CHLOROTHANE NU
SY - CHLOROTENE
SY - ALPHA-T

12. HEXACHLOROETHANE

RN - 67-72-1
MF - C2-CL6
Nl - ETHANE, HEXACHLORO- (9CI)
SY - AVLOTHANE
SY - CARBON HEXACHLORIDE
SY - HEXACHLOROETHANE
SY - PERCHLOROETHANE
SY - PHENOHEP
SY - HEXACHLORETHANE
SY - HEXACHLOROETHYLENE
SY - FASCIOLIN
SY - EGITOL
SY - MOTTENHEXE
SY - FALKITOL
SY - DISTOKAL
SY - DISTOPAN
SY - DISTOPIN

13. 1,1-DICHLOROETHANE

RN - 75-34-3
MF - C2-H4-CL2
Nl - ETHANE, 1,1-DICHLORO- (9CI)
SY - CHLORINATED HYDROCHLORIC ETHER
SY - 1,1-DICHLOROETHANE
SY - ETHYLIDENE CHLORIDE
SY - ETHYLIDENE DICHLORIDE
MH - ETHANE/(74)/AA/(75)
MH - CHLORINE/(74-75)
MH - *ETHYLENE DICHLORIDES/(MINOR 76)

14. 1,1,2-TRICHLOROETHANE

RN - 79-00-5
MF - C2-H3-CL3
Nl - ETHANE, 1,1,2-TRICHLORO- (9CI)
SY - BETA-TRICHLOROETHANE
SY - 1,1,2-TRICHLOROETHANE
SY - VINYLTRICHLORIDE
SY - 1,2,2-TRICHLOROETHANE
SY - BETA-T

15. 1,1,2,2-TETRACHLOROETHANE

RN - 79-34-5
MF - C2-H2-CL4
Nl - ETHANE, 1,1,2,2-TETRACHLORO- (9CI)

1,1,2,2-TETRACHLOROETHANE (Con't)

SY - ACETYLENE TETRACHLORIDE
SY - BONOFORM
SY - CELLON
SY - SYM-TETRACHLOROETHANE
SY - 1,1,2,2-TETRACHLOROETHANE
SY - TETRACHLOROETHANE

16. CHLOROETHANE

RN - 75-00-3
MF - C2-H5-CL
N1 - ETHANE, CHLORO- (9CI)
SY - AETHYLIS
SY - AETHYLIS CHLORIDUM
SY - ANODYNON
SY - CHELEN
SY - CHLORETHYL
SY - CHLORIDUM
SY - CHLOROETHANE
SY - CHLORYL
SY - CHLORYL ANESTHETIC
SY - ETHER CHLORATUS
SY - ETHER HYDROCHLORIC
SY - ETHER MURIATIC
SY - HYDROCHLORIC ETHER
SY - KELENE
SY - MONOCHLORETHANE
SY - MURIATIC ETHER
SY - NARCOTILE
SY - ETHYL CHLORIDE
SY - CHLORETILO
SY - DUBLOFIX
SY - MONOCHLOROETHANE

*CHLOROALKYL ETHERS (CHLOROMETHYL, CHLOROETHYL and mixed ETHERS)

17. BIS(CHLOROMETHYL) ETHER

RN - 542-88-1
MF - C2-H4-CL2-O
N1 - ETHER, BIS(CHLOROMETHYL) (8CI)
N1 - METHANE, OXYBIS(CHLORO- (9CI)
SY - BIS(CHLOROMETHYL) ETHER
SY - CHLOROMETHYL ETHER
SY - SYM-DICHLOROMETHYL ETHER
SY - DICHLORODIMETHYL ETHER
SY - ALPHA, ALPHA'-DICHLORODIMETHYL ETHER
SY - MONOCHLOROMETHYL ETHER
SY - OXYBIS(CHLOROMETHANE)

BIS(CHLOROMETHYL) ETHER (Con't)

MH - *DICHLOROMETHYL ETHER/(MINOR 75)
MH - HYDROCARBONS, CHLORINATED/(74)
MH - METHYL ETHERS/(74)
MH - METHYL CHLORIDE/(74)

18. BIS(2-CHLOROETHYL) ETHER

RN - 111-44-4
MF - C4-H8-CL2-O
N1 - ETHER, BIS(2-CHLOROETHYL) (8CI)
N1 - ETHANE, 1,1'-OXYBIS(2-CHLORO- (9CI)
SY - BIS(BETA-CHLOROETHYL) ETHER
SY - BIS(2-CHLOROETHYL) ETHER
SY - CHLOREX
SY - 1-CHLORO-2-(BETA-CHLOROETHYOXY) ETHANE
SY - DCEE
SY - 2,2'-DICHLOROETHYL ETHER
SY - DI(BETA'-DICHLORODIETHYL ETHER
SY - BETA, BETA'-DICHLORODIETHYL ETHER
SY - 2,2'-DICHLORODIETHYL ETHER
SY - SYM-DICHLOROETHYL ETHER
SY - 2-CHLOROETHYL ETHER

19. 2-CHLOROETHYL VINYL ETHER (Mixed)

RN - 110-75-8
MF - C4-H7-CL-O
N1 - ETHER, 2-CHLOROETHYL VINYL (8CI)
N1 - ETHENE, (2-CHLOROETHOXY)- (9CI)
SY - 2-CHLOROETHYL VINYL ETHER
SY - VINYL BETA-CHLOROETHYL ETHER
SY - VINYL 2-CHLOROETHYL ETHER
SY - BETA-CHLOROETHYL VINYL ETHER
SY - 2-VINYLOXYETHYL CHLORIDE

*CHLORINATED NAPHTHALENE

20. 2-CHLORONAPHTHALENE

RN - 91-58-7
MF - C10-H7-CL
N1 - NAPHTHALENE, 2-CHLORO- (9CI)
SY - BETA-CHLORONAPHTHALENE
SY - 2-CHLORONAPHTHALENE

*CHLORINATED PHENOLS (other than those listed elsewhere; includes TRICHLOROPHENOLS AND CHLORINATED CRESOLS)

21. 2,4,6-TRICHLOROPHENOL

RN - 88-06-2
MF - C6-H3-CL3-O
Nl - PHENOL, 2,4,6-TRICHLORO- (9CI)
SY - DOWICIDE 2S
SY - OMAL
SY - PHENACHLOR
SY - 2,4,6-TRICHLOROPHENOL

22. PARACHLOROMETA CRESOL

RN - 59-50-7
MF - C7-H7-CL-O
Nl - M-CRESOL, 4-CHLORO- (8CI)
Nl - PHENOL, 4-CHLORO-3-METHYL- (9CI)
SY - P-CHLOR-M-CRESOL
SY - P-CHLOROCRESOL
SY - P-CHLORO-M-CRESOL
SY - 4-CHLORO-M-CRESOL
SY - 2-CHLORO-5-HYDROXYTOLUENE
SY - 6-CHLORO-3-HYDROXYTOLUENE
SY - 4-CHLORO-3-METHYLPHENOL
SY - 3-METHYL-4-CHLOROPHENOL
SY - PAROL
SY - PCMC
SY - RASCHIT
SY - CHLOROCRESOL
SY - RASCHIT K
SY - PREVENTOL OMK
SY - 4-CHLORO-5-METHYLPHENOL
SY - BAKTOL
SY - BAKTOLAN
SY - OTTAFACT
SY - RASEN-ANICON
SY - APTAL
SY - CANDASEPTIC
SY - PARMETOL
SY - PERITONAN

23. *CHLOROFORM (TRICHLOROMETHANE)

RN - 67-66-3
ON - SEE ALSO: 8013-54-5
MF - C-H-CL3
Nl - CHLOROFORM (8CI)
Nl - METHANE, TRICHLORO- (9CI)
SY - TRICHLOROMETHANE
SY - TRICHLOROFORM
SY - FREON 20
SY - R 20
SY - R 20 (REFRIGERANT)

24. *2-CHLOROPHENOL

RN - 95-57-8
MF - C6-H5-CL-O
N1 - PHENOL, O-CHLORO- (8CI)
N1 - PEHNOL, 2-CHLORO- (9CI)
SY - O-CHLOROPHENOL
SY - 2-CHLOROPHENOL
SY - 2-HYDROXYCHLOROBENZENE

*DICHLOROBENZENES

25. 1,2-DICHLOROBENZENE

RN - 95-50-1
MF - C6-H4-CL2
N1 - BENZENE, O-DICHLORO- (8CI)
N1 - BENZENE, 1,2-DICHLORO- (9CI)
SY - CHLOROBEN
SY - O-DICHLOROBENZENE
SY - DOWTHERM E
SY - 1,2-DICHLOROBENZENE
SY - DILATIN DB
MH - CHLORINE/(71-73)
MH - BENZENE DERIVATIVES/(71-73)

26. 1,3-DICHLOROBENZENE

RN - 541-73-1
MF - C6-H4-CL2
N1 - BENZENE, M-DICHLORO- (8CI)
N1 - BENZENE, 1,3-DICHLORO- (9CI)
SY - 1,3-DICHLOROBENZENE
SY - M-DICHLOROBENZENE
SY - M-PHENYLENE DICHLORIDE
SY - METADICHLOROBENZENE
SY - M-DICHLOROBENZOL

27. 1,4-DICHLOROBENZENE

RN - 106-46-7
MF - C6-H4-CL2
N1 - BENZENE, P-DICHLORO- (8CI)
N1 - BENZENE, 1,4-DICHLORO- (9CI)
SY - DI-CHLORICIDE
SY - P-DICHLOROBENZENE
SY - PARADI
SY - PARADOW
SY - PARAMOTH
SY - PDB
SY - SANTOCHLOR

1,4-DICHLOROBENZENE (Con't)

SY - 1,4-DICHLOROBENZENE
SY - P-CHLOROPHENYL CHLORIDE
SY - EVOLA
SY - PERSIA-PERZOL

*DICHLOROBENZIDINE

28. 3,3'-DICHLOROBENZIDINE

RN - 1331-47-1
MF - C12-H10-CL2-N2
N1 - BENZIDINE, DICHLORO- (8CI)
N1 - (1,1'-BIPHENYL)-4,4'-DIAMINE, DICHLORO- (9CI)
SY - DICHLOROBENZIDINE

*DICHLOROETHYLENES (1,1-DICHLOROETHYLENE and 1,2-DICHLORO-ETHYLENE)

29. 1,1-DICHLOROETHYLENE

RN - 75-35-4
MF - C2-H2-CL2
N1 - ETHYLENE, 1,1-DICHLORO- (8CI)
N1 - ETHENE, 1,1-DICHLORO- (9CI)
SY - 1,1-DICHLOROETHYLENE
SY - VINYLIDENE CHLORIDE
SY - SCONATED
SY - 1,1-DICHLOROETHENE

30. 1,2-TRANS-DICHLOROETHYLENE

RN - 540-59-0
MF - C2-H2-CL2
N1 - ETHYLENE, 1,2-DICHLORO- (8CI)
N1 - ETHENE, 1,2-DICHLORO- (9CI)
SY - 1,2-DICHLOROETHYLENE
SY - DIOFORM
SY - ACETYLENE DICHLORIDE
SY - SYM-DICHLOROETHYLENE
SY - 1,2-DICHLOROETHENE

31. 2,4-DICHLOROPHENOL

RN - 120-83-2
MF - C6-H4-CL2-O
N1 - PHENOL, 2,4-DICHLORO- (9CI)
SY - DCP
SY - 2,4-DICHLOROPHENOL
SY - 4,6-DICHLOROPHENOL
SY - ISOBAC
MH - PHENOLS/(69-
MH - CHLORINE/(74-75)

*DICHLOROPROPANE and DICHLOROPROPENE

32. 1,2-DICHLOROPROPANE

RN - 78-87-5
ON - SEE ALSO: 26198-64-1
MF - C3-H6-CL2
N1 - PROPANE, 1,2-DICHLORO- (9CI)
SY - 1,2-DICHLOROPROPANE
SY - PROPYLENE CHLORIDE
SY - PROPYLENE DICHLORIDE
MH - PROPANE/(74)/AA/(75-
MH - CHLORINE/(74-75)

33. 1,2-DICHLOROPROPYLENE (1,3-DICHLOROPROPENE)

RN - 542-75-6
ON - SEE ALSO: 8022-76-2
MF - C3-H4-CL2
N1 - PROPENE, 1,3-DICHLORO- (8CI)
N1 - 1-PROPENE, 1,3-DICHLORO- (9CI)
SY - 1,3-DICHLOROPROPENE
SY - ALPHA, GAMMA-DICHLOROPROPYLENE
SY - 1,3-DICHLOROPROPYLENE
SY - GAMMA- CHLOROALLYL CHLORIDE
SY - TELONE
SY - TELONE C
SY - 1,3-D
SY - 1,3-DICHLORO-2-PROPENE
SY - 3-CHLOROPROPENYL CHLORIDE
SY - 1,3-DICHLORO-1-PROPENE
MH - CHLORINE/(74-75)
MH - ALLYL COMPOUNDS/(74-

34. *2,4-DIMETHYLPHENOL

RN - 105-67-9
MF - C8-H10-O
N1 - 2,4-XYLENOL (8CI)
N1 - PHENOL, 2,4-DIMETHYL- (9CI)
SY - 2,4-DIMETHYLPHENOL
SY - 4,6-DIMETHYLPHENOL
SY - 1-HYDROXY-2,4-DIMETHYLBENZENE
SY - M-XYLENOL
SY - 4-HYDROXY-1,3-DIMETHYLBENZENE

*DINITROTOLUENE

35. 2,4-DINITROTOLUENE

RN - 121-14-2
MF - C7-H6-N2-O4
N1 - TOLUENE, 2,4-DINITRO- (8CI)
N1 - BENZENE, 1-METHYL-2,4-DINITRO- (9CI)
SY - 2,4-DINITROTOLUENE
SY - 2,4-DNT

36. 2,6-DINITROTOLUENE

RN - 606-20-2
MF - C7-H6-N2-O4
N1 - TOLUENE, 2,6-DINITRO- (8CI)
N1 - BENZENE, 2-METHYL-1,3-DINITRO- (9CI)
SY - 2,6-DINITROTOLUENE

37. *1,2-DIPHENYLHYDRAZINE

RN - 122-66-7
MF - C12-H12-N2
N1 - HYDRAZOBENZENE (8CI)
N1 - HYDRAZINE, 1,2-DIPHENYL- (9CI)
SY - N,N'-BIANILINE
SY - BENZENE, HYDRAZODI-
SY - BENZENE, 1,1'-HYDRAZOBIS-
SY - 1,2-DIPHENYL HYDRAZINE
SY - N,N-DIPHENYLHYDRAZINE

38. *ETHYLBENZENE

RN - 100-41-4
MF - C8-H10
N1 - BENZENE, ETHYL- (9CI)
SY - EB
SY - ETHYLBENZENE
SY - ETHYLBENZOL
SY - PHENYLETHANE
MH - BENZENE DERIVATIVES/(69-

39. *FLUORANTHENE

RN - 206-44-0
MF - C16-H10
N1 - FLUORANTHENE (9CI)
SY - BENZO(JK)FLUORENE
SY - IDRYL
SY - 1,2-(1,8-NAPHTHYLENE)BENZENE
SY - BENZENE, 1,2-(1,8-NAPHTHALENEDIYL)-

*HALOETHERS (other than those listed elsewhere)

40. 4-CHLOROPHENYL PHENYL ETHER

CHEMLINE has no information on this chemical. The following was supplied by EPA sources:

RN - 7005-72-3
SY - P-CHLOROPHENOXY BENZENE
SY - P-CHLORODIPHENYL ETHER
SY - 4-CHLOROPHENYL PHENYL ETHER

41. 4-BROMOPHENYL PHENYL ETHER

RN - 101-55-3
MF - C12-H9-BR-O
N1 - ETHER, P- BROMOPHENYL PHENYL (8CI)
N1 - BENZENE, 1-BROMO-4-PHENOXY- (9CI)
SY - P- BROMOPHENYL PHENYL ETHER
SY - ETHER, 4-BROMOPHENYL PHENYL
SY - PHENYL ETHER, 4-BROMO-
SY - 4-BROMOPHENOXYBENZENE
SY - P-BROMODIPHENYL ETHER
SY - 4-BROMOPHENYL PHENYL ETHER
SY - P-PHENOXYBROMOBENZENE
SY - 4-BROMODIPHENYL ETHER
SY - P-BROMOPHENOXYBENZENE
SY - DIPHENYL ETHER, 4-BROMO-
SY - 1-BROMO-4-PHENOXYBENZENE

42. BIS(2-CHLOROISOPROPYL)ETHER

RN - 39638-32-9
MF - C6-H12-CL2-O
N1 - PROPANE, 2,2'-OXYBIS(2-CHLORO- (9CI)
SY - BIS(2-CHLOROISOPROPYL)ETHER

43. BIS(2-CHLOROETHOXY)METHANE

RN - 111-91-1
MF - C5-H10-CL2-O2
N1 - METHANE, BIS(2-CHLOROETHOXY)- (8CI)
N1 - ETHANE, 1,1'-(METHYLENEBIS(OXY)BIS(2-CHLORO- (9CI)
SY - BIS(2-CHLOROETHOXY)METHANE
SY - DI-2-CHLOROETHYL FORMAL
SY - FORMALDEHYDE BIS(BETA-CHLOROETHYL) ACETAL
SY - BIS(BETA-CHLOROETHYL) FORMAL
SY - BIS(2-CHLOROETHYL) FORMAL

*HALOMETHANES (others than those listed elsewhere)

44. METHYLENE CHLORIDE (DICHLOROMETHANE)

RN - 75-09-2
MF - C-H2-CL2
N1 - METHANE, DICHLORO- (9CI)
SY - DICHLOROMETHANE
SY - METHYLENE CHLORIDE
SY - METHYLENE DICHLORIDE
SY - SOLAESTHIN
SY - AEROTHENT MM
SY - FREON 30
SY - NARKOTIL
SY - SOLMETHINE
MH - METHANE/(72-74)
MH - HYDROCARBONS, CHLORINATED/(74)
MH - *METHYLENE CHLORIDE/(MINOR 75)

45. METHYL CHLORIDE (CHLOROMETHANE)

RN - 74-87-3
MF - C-H3-CL
N1 - METHANE, CHLORO- (9CI)
SY - ARTIC
SY - CHLOROMETHANE
SY - METHYL CHLORIDE
SY - MONOCHLOROMETHANE
SY - FREON 40

46. METHYL BROMIDE (BROMOMETHANE)

RN - 74-83-9
MF - C-H3-BR
N1 - METHANE, BROMO- (9CI)
SY - BROMOMETHANE
SY - EMBAFUME
SY - ISCOBROME
SY - METHYL BROMIDE
SY - MONOBROMOMETHANE
SY - TERABOL
SY - HALOX
MH - HYDROCARBONS, HALOGENATED/(72-73)
MH - HYDROCARBONS, BROMINATED/(74-

47. BROMOFORM (TRIBROMOMETHANE)

RN - 75-25-2
MF - C-H-BR3
N1 - METHANE, TRIBROMO- (9CI)
SY - BROMOFORM
SY - METHENYL TRIBROMIDE
SY - TRIBROMOMETHANE

48. DICHLOROBROMOMETHANE

RN - 75-27-4
MF - C-H-BR-CL2
N1 - METHANE, BROMODICHLORO- (9CI)
SY - BROMODICHLOROMETHANE
SY - DICHLOROBROMOMETHANE

49. TRICHLOROFLUOROMETHANE

RN - 75-69-4
MF - C-CL3-F
N1 - METHANE, TRICHLOROFLUORO- (9CI)
SY - ALGOFRENE TYPE 1
SY - ARCTON 9
SY - ELECTRO-CE 11
SY - FLUOROTRICHLOROMETHANE
SY - FRIGEN 11
SY - GENETROL 11
SY - ISCEON 131
SY - LEDON 11
SY - MONOFLUOROTRICHLOROMETHANE
SY - ISOTRON 11
SY - TRICHLOROFLUOROMETHANE
SY - TRICHLOROMONOFLUOROMETHANE
SY - FREON MF
SY - FREON 11
SY - FRIGEN 11A
SY - PROPELLANT 11
SY - R 11
SY - FC 11 (HALOCARBON)
SY - F 11B
SY - FKW 11
SY - FLUOROCHLOROFORM
SY - FREON R 11
SY - R 11 (HALOCARBON)
SY - FC 11
MH - *FREON/(MINOR 73)

50. DICHLORODIFLUOROMETHANE

RN - 75-71-8
MF - C-CL2-F2
N1 - METHANE, DICHLORODIFLUORO- (9CI)
SY - FREON 12
SY - ALGOFRENE TYPE 2
SY - ARCTON 6
SY - DICHLORODIFLUOROMETHANE
SY - DIFLUORODICHLOROMETHANE

DICHLORODIFLUOROMETHANE (Con't)

SY - ELECTRO-CF 12
SY - FRIGEN 12
SY - GENETRON 12
SY - ISCEON 122
SY - ISOTRON 12
SY - LEDON 12
SY - FC 12
SY - R 12 (REFRIGERANT)
SY - ARCTRON 12

51. CHLORODIBROMOMETHANE

RN - 121-48-1
MF - C-H-BR2-CL
N1 - METHANE, DIBROMOCHLORO- (9CI)
SY - DIBROMOCHLOROMETHANE

52. *HEXACHLOROBUTADIENE

RN - 87-68-3
MF - C4-CL6
N1 - 1,3-BUTADIENE, 1,1,2,3,4,4-HEXACHLORO (9CI)
SY - HEXACHLORO-1,3-BUTADIENE
SY - HEXACHLOROBUTADIENE
SY - C 46
SY -PERCHLOROBUTADIENE
SY - 1,1,2,3,4,4-HEXACHLORO-1,3-BUTADIENE
MH - HYDROCARBONS, CHLORINATED/(74-75)
MH - CHLORINE/(71-73)
MH - BUTADIENE/(71-74)/AA/(75-

53. *HEXACHLOROCYCLOPENTADIENE

RN - 77-47-4
MF - C5-CL6
N1 - 1,3-CYCLOPENTADIENE, 1,2,3,4,5,5-HEXACHLORO- (9CI)
SY - C 56
SY - HRS 1655
SY - GRAPHLOX
SY - HEXACHLOROCYCLOPENTADIENE
SY - PERCHLOROCYCLOPENTADIENE

54. *ISOPHORONE

RN - 78-59-1
MF - C9-H14-O
N1 - 2-CYCLOHEXEN-1-ONE, 3,5,5-TRIMETHYL- (9CI)
SY - ISOACETOPHORONE
SY - ISOPHORONE

ISOPHORONE (Con't)

SY - ISOFORON
SY - ISOPHORON
SY - ALPHA-ISOPHORON
SY - 3,5,5-TRIMETHYL-2-CYCLOHEXENONE
SY - ALPHA-ISOPHORONE
MH - CYCLOHEXANONES/(75-
MH - CYCLOHEXANE/(69-74)

55. *NAPHTHALENE

RN - 91-20-3
MF - C10-H8
N1 - NAPHTHALENE (9CI)
SY - MOTH FLAKES
SY - NAPHTHALIN
SY - NAPHTHALINE
SY - NAPHTHENE
SY - TAR CAMPHOR
SY - WHITE TAR
SY - ALBOCARBON
SY - DEZODORATOR

56. *NITROBENZENE

RN - 98-95-3
ON - SEE ALSO: 45694-04-0
MF - C6-H5-N-O2
N1 - BENZENE, NITRO- (9CI)
SY - ESSENCE OF MIRBANE
SY - ESSENCE OF MYBANE
SY - MIRBANE OIL
SY - NITROBENZENE
SY - NITROBENZOL
SY - OIL OF MIRBANE
SY - OIL OF MYRBANE

*NITROPHENOLS (including 2,4-DINITROPHENOL and DINITROCRESOL)

57. 2-NITROPHENOL

RN - 88-75-5
MF - C6-H5-N-O3
N1 - PHENOL, O-NITRO- (8CI)
N1 - PHENOL, 2-NITRO- (9CI)
SY - O-HYDROXYNITROBENZENE
SY - O-NITROPHENOL
SY - 2-NITROPHENOL
SY - 2-HYDROXYNITROBENZENE

58. 4-NITROPHENOL

RN - 100-02-7
MF - C6-H5-N-O3
N1 - PHENOL, P-NITRO- (8CI)
N1 - PHENOL, 4-NITRO- (9CI)
SY - P-NITROPHENOL
SY - 4-NITROPHENOL
SY - P-HYDROXYNITROBENZENE
SY - 4-HYDROXYNITROBENZENE
SY - NIPHEN

59. *2,4-DINITROPHENOL

RN - 51-28-5
MF - C6-H4-N2-O5
N1 - PHENOL, 2,4-DINITRO- (9CI)
SY - ALDIFEN
SY - ALPHA-DINITROPHENOL
SY - 2,4-DINITROPHENOL
SY - 2,4-DNP
SY - FENOXYL CARBON N
SY - NITROPHENE
SY - SOLFO BLACK B
SY - SOLFO BLACK G
SY - SOLFO BLACK BB
SY - SOLFO BLACK SB
SY - SOLFO BLACK 2B SUPRA
SY - TERTROSULPHUR BLACK PB
SY - TERTROSULPHUR PBR
SY - PHENOL, ALPHA-DINITRO-
SY - 1-HYDROXY-2,4-DINITROBENZENE

60. 4,6-DINITRO-O-CRESOL

RN - 534-52-1
ON - SEE ALSO: 8068-73-3
ON - SEE ALSO: 8071-51-0
ON - SEE ALSO: 37359-43-6
ON - SEE ALSO: 53240-95-2
MF - C7-H6-N2-O5
N1 - O-CRESOL, 4,6-DINITRO- (8CI)
N1 - PHENOL, 2-METHYL-4,6-DINITRO- (9CI)
SY - ANTINONIN
SY - DEKRYSIL
SY - DETAL
SY - 4,6-DINITRO-O-CRESOL
SY - 3,5-DINITRO-2-HYDROXYTOLUENE
SY - DINITROL
SY - 2,4-DINITRO-6-METHYLPHENOL
SY - DITROSOL
SY - DN

4,6-DINITRO-O-CRESOL (Con't)

SY - DNOC
SY - EFFUSAN
SY - EFFUSAN 3436
SY - HEDOLITE
SY - K III
SY - K IV
SY - ELGETOL 30
SY - LIPAN
SY - 2-METHYL-4,6-DINITROPHENOL
SY - PROKARBOL
SY - SANDOLIN A
SY - SINOX
SY - DINOC
SY - HEDOLIT
SY - SELINON
SY - ELGETOL
SY - WINTERWASH
SY - RAFEX 35
SY - RAFEX
SY - 6-METHYL-2,4-DINITROPHENOL
SY - KREZOTOL 50
SY -SANDOLIN
SY - DINITROCRESOL
SY - ANTINONNIN
SY - DILLEX
SY - DINURANIA
SY - EXTRAR
SY - DINITRO-O-CRESOL
SY - RAPHATOX
SY - ARBOROL
SY - DEGRASSAN
SY - ELIPOL
SY - NITROFAN
SY - DINITRO
MH - *DINITROCRESOL/(MINOR 72)

*NITROSAMINES

61. N-NITROSODIMETHYLAMINE

RN - 62-75-9
MF - C2-H6-N2-O
N1 - DIMETHYLAMINE, N-NITROSO- (8CI)
N1 - METHANAMINE, N-METHYL-N-NITROSO- (9CI)
SY - DIMETHYLNITROSAMINE
SY - DMN
SY - DMNA
SY - N-NITROSODIMETHYLAMINE
MH - *DIMETHYLNITROSAMINE/(MINOR 75)
MH - NITROSAMINES/(72-74)
MH - DIMETHYLAMINES/(72-74)

62. N-NITROSODIPHENYLAMINE

RN - 86-30-6
MF - C12-H10-N2-O
N1 - DIPHENYLAMINE, N-NITROSO- (8CI)
N1 - BENZENAMINE, N - NITROSO-N-PHENYL- (9CI)
SY - NITROSODIPHENYLAMINE
SY - N-NITROSODIPHENYLAMINE
SY - DIPHENYLNITROSAMINE
SY - RETARDER J
SY - REDAX
SY - N-NITROSO-N-PHENYLANILINE
SY - VULKALENT A
SY - VULTROL
SY - VULCATARD A

63. N-NITROSODI-N-PROPYLAMINE

RN - 26457-81-8
MF - C6-H6-N2-O
N1 - DI-2-PROPYNYLAMINE, N-NITROSO- (8CI)
N1 - 2-PROPYN-1-AMINE, N-NITROSO-N-2-PROPYNYL- (9CI)
SY - N-NITROSODI-2-PROPYNYLAMINE
SY - DI-2-PROPYNYLNITROSAMINE
SY - N-NITROSODIPROPARGYLAMINE

64. *PENTACHLOROPHENOL

RN - 87-86-5
MF - C6-H-CL5-O
N1 - PHENOL, PENTACHLORO- (9CI)
SY - DOWICIDE 7
SY -PCP
SY - PENCHLOROL
SY - PENTA
SY - EP 30
SY - LIROPREM
SY - PENTACHLOROPHENOL
SY - GRUNDIER ARBEZOL
SY - LAUXTOL
SY - PERMASAN
SY - FUNGIFEN
SY - SANTOPHEN 20
MH - *PENTACHLOROPHENOL/(MINOR 72)

65. *PHENOL

RN - 108-95-2
ON - SEE ALSO: 8002-07-1
ON - SEE ALSO: 14534-23-7
ON - SEE ALSO: 50356-25-7

PHENOL (Con't)

MF - C6-H6-O
N1 - PHENOL (9CI)
SY - CARBOLIC ACID
SY - HYDROXYBENZENE
SY - MONOHYDROXYBENZENE
SY - OXYBENZENE
SY - PHENIC ACID
SY - PHENYL HYDRATE
SY - PHENYL HYDROXIDE
SY - PHENYLIC ACID
SY - PHENYLIC ALCOHOL
SY - IZAL
MH - PHENOLS/(69-9

*PHTHALATE ESTERS

66. BIS(2-ETHYLHEXYL) PHTHALATE

RN - 117-81-7
ON - SEE ALSO: 8033-53-2
ON - SEE ALSO: 40120-69-2
ON - SEE ALSO: 50885-87-5
MF - C24-H38-O4
N1 - PHTHALIC ACID, BIS(2-ETHYLEHEXYL) ESTER (8CI)
N1 - 1,2-BENZENEDICARBOXYLIC ACID, BIS(2-ETHYLHEXYL) ESTER (9CI)
SY - BIS(2-ETHYLHEXYL) PHTHALATE
SY - COMPOUND 889
SY - DOP
SY - FLEXOL DOP
SY - OCTOIL
SY - PITTSBURGY PX-138
SY - STAFLEX DOP
SY - TRUFLEX DOP
SY - WITCIZER 312
SY - OCTYL PHTHALATE
SY - PALATINOL AH
SY - DIOCTYL PHTHALATE
SY - KODAFLEX DOP
SY - SICOL 150
SY - ETHYLHEXYL PHTHALATE
SY - VESTINOL AH
SY - BISOFLEX 81
SY - PHTHALIC ACID DIOCTYL ESTER
SY - BIS(2-ETHYLHEXYL) 1,2-BENZENEDICARBOXYLATE
SY - 2-ETHYLHEXYL PHTHALATE
SY - DEHP
SY - FLEXIMEL

BIS(2-ETHYLHEXYL) PHTHALATE (Con;t)

SY - DI-(2-ETHYLHEXYL)-PHTHALATE
SY - 1,2-BENZENEDICARBOXYLIC ACID, BIS(ETHYLHEXYL) ESTER
SY - DI-(ETHYHEXYL) PHTHALATE
SY - DIETHYLHEXYL PHTHALATE
MH - *DIETHYLHEXYLPHTHALATE/(MINOR IN 75)
MH - ESTERS/(74)
MH - PHTHALIC ACIDS/(69-74)

67. BUTYL BENZYL PHTHALATE

RN - 85-68-7
ON - SEE ALSO: 58128-78-2
MF - C19-H20-O4
N1 - PHTHALIC ACID, BENZYL BUTYL ESTER (8CI)
N1 - 1,2-BENZENEDICARBOXYLIC ACID,
BUTYL PHENYLMETHYL ESTER (9CI)
SY - BENZYL BUTYL PHTHALATE
SY - BUTYL BENZYL PHTHALATE
SY - PALATINOL BB
SY - SANTICIZER 160
SY - SICOL 160
SY - UNIMOLL BB

68. DI-N-BUTYL PHTHALATE

RN - 84-74-2
MF - C16-H22-O4
N1 - PHTHALIC ACID, DIBUTYL ESTER (8CI)
N1 - 1,2-BENZENEDICARBOXYLIC ACID, DIBUTYL ESTER (9CI)
SY - PX 104
SY - CELLUFLEX DPB
SY - DIBUTYL PHTHALATE
SY - EROL
SY - PALATINOL C
SY - POLYCIZER DBP
SY - STAFLEX DBP
SY - WITCIZER 300
SY - HEXAPLAS M/B
SY - BUTYL PHTHALATE
SY - N-BUTYL PHTHALATE
SY - BENOPLAST B
SY - UNIMOLL DB

69. DI-N-OCTYL PHTHALATE

RN - 117-84-0
ON - SEE ALSO: 8031-29-6
ON - SEE ALSO: 14374-99-3
MF - C24-H38-O4

DI-N-OCTYL PHTHALATE (Con't)

N1 - PHTHALIC ACID, DIOCTYL ESTER (8CI)
N1 - 1,2-BENZENEDICARBOXYLIC ACID, DIOCTYL ESTER (9CI)
SY - DIOCTYL O-BENZENEDICARBOXYLATE
SY - OCTYL PHTHALATE
SY - POLYCIZER 162
SY - DIOCTYL PHTHALATE
SY - DINOPOL NOP
SY - N-OCTYL PHTHALATE

70. DIETHYL PHTHALATE

RN - 84-66-2
MF - C12-H14-O4
N1 - PHTHALIC ACID, DIETHYL ESTER (8CI)
N1 - 1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER (9CI)
SY - ANOZOL
SY - ETHYL PHTHALATE
SY - NEANTINE
SY - PALATINOL A
SY - PHTHALOL
SY - PLACIDOL E
SY - SOLVANOL
SY - DIETHYL PHTHALATE
SY - UNIMOLL DA
SY - O-BENZENEDICARBOXYLIC ACID DIETHYL ESTER

71. DIMETHYL PHTHALATE

RN - 131-11-3
MF - C10-H10-O4
N1 - PHTHALIC ACID, DIMETHYL ESTER (8CI)
N1 - 1,2-BENZENEDICARBOXYLIC ACID, DIMETHYL ESTER (9CI)
SY - DIMETHYL 1,2-BENZENEDICARBOXYLATE
SY - DIMETHYL PHTHALATE
SY - DMP
SY - FERMINE
SY - AVOLIN
SY - MIPAX
SY - NTM
SY - PALATINOL M
SY - SOLVANOM
SY - SOLVARONE
SY - UNIMOLL DM

*POLYNUCLEAR AROMATIC HYDROCARBONS

72. BENZO(A)ANTHRACENE (1,2-BENZANTHRACENE)

RN - 56-55-3
MF - C18-H12
N1 - BENZ(A)ANTHRACENE (9CI)
SY - BENZANTHRENE
SY - BENZO(A)ANTHRACENE
SY - BENZO(B)PHENANTHRENE
SY - 2,3-BENZOPHENANTHRENE
SY - TETRAPHENE
SY - 1,2-BENZANTHRACENE
SY - 1,2-BENZ(A)ANTHRACENE
SY - BENZANTHRACENE
SY - 1,2-BENZANTHRENE
SY - 1,2-BENZOANTHRACENE
SY - BENZOANTHRACENE

73. BENZO(A)PYRENE (3,4-BENZOPYRENE)

RN - 50-32-8
MF - C20-H12
N1 - BENZO(A)PYRENE (9CI)
SY - 3,4-BENZPYRENE
SY - 3,4-BENZOPYRENE
SY - 3,4-BENZOPYRENE (CARCINOGEN)
SY - BENZ(A)PYRENE
SY - 3,4-BENZ(A)PYRENE
SY - 6,7-BENZOPYRENE

74. 3,4-BENZOFLUORANTHENE

RN - 205-99-2
MF - C20-H12
N1 - BENZ(E)ACEPHENANTHRYLENE (9CI)
SY - BENZO(E)FLUORANTHENE
SY - 3,4-BENZOFLUORANTHENE
SY - BENZO(B)FLUORANTHENE
SY - 3,4-BENZ(E)ACEPHENANTHRYLENE
SY - 3,4-BENZOPLUORANTHRENE
SY - 2,3-BENZOFLUORANTHRENE

75. BENZO(K)FLUORANTHANE (11,12-BENZOFLUORANTHENE)

RN - 207-08-9
MF - C20-H12
N1 - BENZO(K)FLUORANTHENE (9CI)
SY - DIBENZO(B,JK)FLUORENE
SY - 11,12-BENZOFLUORANTHENE
SY - 2,3,1',8'-BINAPHTHYLENE
SY - 8,9-BENZOFLUORANTHENE

76. CHRYSENE

RN - 218-01-9
ON - SEE ALSO: 27274-05-1
MF - C18-H12
N1 - CHRYSENE (9CI)
SY - 1,2-BENZPHENANTHRENE
SY - BENZO(A)PHENANTHRENE

77. ACENAPHTHYLENE

RN - 208-96-8
MF - C12-H8
N1 - ACENAPHTHYLENE (9CI)
SY - CYCLOPENTA(DE)NAPHTHALENE

78. ANTHRACENE

RN - 120-12-7
ON - SEE ALSO: 4820-00-2
MF - C14-H10
N1 - ANTHRACENE (9CI)
SY - ANTHRACIN
SY - GREEN OIL
SY - PARANAPHTHALENE
SY - TETRA OLIVE N2G

79. BENZO(GHI)PERYLENE (1,12-BENZOPERYLENE)

RN - 191-24-2
MF - C22-H12
N1 - BENZO(GHI)PERYLENE (9CI)
SY - 1,12-BENZOPERYLENE

80. FLUORENE

RN - 86-73-7
MF - C13-H10
N1 - FLUORENE (8CI)
N1 - 9H-FLUORENE (9CI)
SY - O-BIPHENYLENEMETHANE
SY - DIPHENYLENEMETHANE
SY - 2,2'-METHYLENEBIPHENYL
SY - METHANE, DIPHENYLENE-

81. PHENANTHRENE

RN - 85-01-8
MF - C14-H10
N1 - PHENANTHRENE (9CI)

82. DIBENZO(A,H)ANTHRACENE (1,2,5,6-DIBENZATHRACENE)

RN - 53-70-3
MF - C22-H14
N1 - DIBENZ(A,H)ANTHRACENE (9CI)
SY - DBA
SY - 1,2:5,6-DIBENZANTHRACENE
SY - DIBENZO(A,H)ANTHRACENE
SY - 1,2:5,6-DIBENZ(A)ANTHRACENE
SY - 1,2:5,6-BENZANTHRACENE
SY - 1,2:5,6-DIBENZOANTHRACENE

83. INDENO(1,2,3-CD)PYRENE (2,3-O-PHENYLENEPYRENE)

RN - 193-39-5
N1 - PYRENE, INDENO(1,2,3-CD)-
SY - IP
SY - 2,3-PHENYLENEPYRENE
SY - 2,3-O-PHENYLENEPYRENE
SY - INDENO(1,2,3-CD)PYRENE

84. PYRENE

RN - 129-00-0
ON - SEE ALSO: 4820-01-3
MF - C16-H10
N1 - PYRENE (9CI)
SY - BENZO(DEF)PHENANTHRENE
SY - BETA-PYRENE
MH - PHENANTHRENES/(69-73)
MH - *PYRENE/(MAJOR IN 74)

85. *TETRACHLOROETHYLENE

RN - 127-18-4
MF - C2-CL4
N1 - ETHYLENE, TETRACHLORO- (8CI)
N1 - ETHENE, TETRACHLORO- (9CI)
SY - ANKILOSTIN
SY - DIDAKENE
SY - ETHYLENE TETRACHLORIDE
SY - NEMA
SY - PERCHLOROETHYLENE
SY - PERSEC
SY - TETRACAP
SY - TETRACHLOROETHYLENE
SY - 1,1,2,2-TETRACHLOROETHYLENE
SY - TETRACHLORETHYLENE
SY - PERCHLORETHYLENE
SY - TETRACHLOROETHENE
SY - ANTISAL 1
SY - TETRAGUER
SY - FEDAL-UN

TETRACHLOROETHYLENE (Con't)

SY - TETRALENO
SY - TETROPIL
SY - PERCLENE
SY - TETLEN

86. *TOLUENE

RN - 108-88-3
MF - C7-H8
Nl - TOLUENE (8CI)
Nl - BENZENE, METHYL- (9CI)
SY - METHACIDE
SY - METHYLBENZENE
SY - METHYBENZOL
SY - PHENYLMETHANE
SY - TOLUOL
SY - ANTISAL 1A

87. *TRICHLOROETHYLENE

RN - 79-01-6
MF - C2-H-CL3
Nl - ETHYLENE, TRICHLORO- (8CI)
Nl - ETHENE, TRICHLORO- (9CI)
SY - ALGYLEN
SY - CHLORYLEN
SY - ETHINYL TRICHLORIDE
SY - ETHYLENE TRICHLORIDE
SY - GERMALGENE
SY - THRETHYLEN
SY - THRETHYLENE
SY - TRETHYLENE
SY - TRI
SY - TRICHLORAN
SY - TRICHLOREN
SY - TRICHLOROETHENE
SY - TRICHLOROETHYLENE
SY - TRILENE
SY - TRIMAR
SY - WESTROSOL
SY - TRICLENE
SY - ANAMENTH
SY - FLUATE
SY - DENSINFLUAT
SY - NARCOGEN
SY - TRILEN
SY - CHLORILEN
SY - NARKOGEN
SY - CHORYLEN
SY - NARKOSOID

88. *VINYL CHLORIDE (CHLORETHYLENE)

RN - 75-01-4
MF - C2-H3-CL
N1 - ETHYLENE, CHLORO- (8CI)
N1 - ETHENE, CHLORO- (9CI)
SY - CHLOROETHENE
SY - CHLOROETHYLENE
SY - VINYL C MONOMER
SY - MONOCHLOROETHYLENE
SY - VINYL CHLORIDE

PESTICIDES AND METABOLITES

89. *ALDRIN

RN - 309-00-2
ON - SEE ALSO: 3714-23-6
ON - SEE ALSO: 6851-31-6
ON - SEE ALSO: 24562-14-9
ON - SEE ALSO: 34487-55-3
MF - C12-H8-CL6
N1 - 1,4:5,8-DIMETHANONAPHTHALENE,
1,2,3,4,10,10-HEXACHLORO-1,4,4A,5,8,8A-HEXAHYDRO-,
(1ALPHA,4ALPHA,4ABETA,5ALPHA,8ALPHA,8ABETA)- (9CI)
N1 - 1,4:5,8-DIMETHANONAPHTHALENE,
1,2,3,4,10,10-HEXACHLORO-1,4,4A,5,8,8A-HEXAHYDRO-,
ENDO,EXO- (8CI)
SY - ENT 15,949
SY - ALDRIN
SY - COMPOUND 118
SY - OCTALENE
SY - SEEDRIN
SY - TATUZINHO
SY - SD 2794
SY - ALDOCIT
SY - KORTOFIN
SY - TIPULA
MH - *ALDRIN/(MAJOR 73)

90. *DIELDRIN

RN - 60-57-1
ON - SEE ALSO: 3039-00-7
ON - SEE ALSO: 12622-75-2
ON - SEE ALSO: 15113-81-2
ON - SEE ALSO: 17301-10-9
ON - SEE ALSO: 19237-11-7
ON - SEE ALSO: 24502-07-6
ON - SEE ALSO: 33648-22-5
ON - SEE ALSO: 33737-28-9

DIELDRIN (Con't)

MF - C12-H8-CL6-O
N1 - 1,4:5,8-DIMETHANONAPHTHALENE,
1,2,3,4,10,10-HEXACHLORO-6,7-EPOXY-1,4,4A,5,6,7,8,8A-OCTAHYDRO-,ENDO,EXO- (8CI)
N1 - 2,7:3,6-DIMETHANONAPHTH(2,3-B)OXIRENE,
3,4,5,6,9,9-HEXACHLORO-1A,2,2A,3,6,6A,7,7A-OCTAHYDRO-,
(1AALPHA,2BETA,2AALPHA,3BETA,6BETA,6AALPHA,7BETA,
7AALPHA)- (9CI)
SY - DIELDRIN
SY - HEOD
SY - ILLOXOL
SY - OCRALOX
SY - ALDRIN EPOXIDE
SY - INSECTLACK
SY - ALVIT 55
SY - ENT-16225
SY - RED SHIELD
SY - SD 3417
SY - DIELDREX
SY - DORYTOX
SY - MOTH SNUB D
SY - KOMBI-ALBERTAN
SY - TERMITOX
SY - DILDRIN

91. *CHLORDANE (Technical mixture and metabolites)

RN - 12789-03-6
ON - SEE ALSO: 52002-35-4
MF - EXACT COMPOSITION UNKNOWN OR UNDERTERMINED
N1 - CHLORDANE (9CI)
SY - TECHNICAL CHLORDANE
SY - CHLORDANE (TECHNICAL)
SY - BELT
SY - CHLOR KIL
SY - CORODANE
SY - KYPCHLOR
SY - INTOX (INSECTICIDE)
SY - INTOX
SY - UNEXAN-KOEDER

*DDT AND METABOLITES

92. 4,4'-DDT

RN - 50-29-3
MF - C14-H9-CL5
N1 - ETHANE, 1,1,1-TRICHLORO-2,2-BIS(P-CHLOROPHENYL- (8CI)
N1 - BENZENE, 1,1'-(2,2,2-TRICHLOROETHYLIDENE)BIS(4-CHLORO- (9CI)

4,4'-DDT (Con't)

SY - ARKOTINE
SY - ALPHA, ALPHA-BIS(P-CHLOROPHENYL)-BETA,BETA,BETA-TRICHLORETHANE
SY - 2,2-BIS(P-CHLOROPHENYL-1,1,1-TRICHLOROETHANE
SY - CHLOROPHENOTHANE
SY - DDT
SY - P,P'-DDT
SY - 4,4'-DICHLORODIPHENYLTRICHLOROETHANE
SY - DICOPHANE
SY - P,P'-DICHLORODIPHENYLTRICHLOROETHANE
SY - ESTONATE
SY - GESAFID
SY - GESAROL
SY - NEOCID
SY - PENTACHLORIN
SY - TRICHLOROBIS(4'-CHLOROPHENYL)ETHANE
SY - 1,1,1-TRICHLORO-2,2-BIS(P-CHLOROPHENYL)ETHANE
SY - ZERDANE
SY - AGRITAN
SY - AZOTOX
SY - AZOTOX M-33
SY - CITOX
SY - 4,4'-DDT
SY - DYKOL
SY - CHLOFENOTAN
SY - ENT-1506
SY - ETHANE, 1,1,1-TRICHLORO-2,2-BIS(4-CHLOROPHENYL)-
SY - DETOX
SY - 1,1-BIS(P-CHLOROPHENYL)-2,2,2-TRICHLOROETHANE
SY - 1,1,1-TRICHLORO-2,2-BIS(4,4'-DICHLORODIPHENYL)ETHANE
SY - DETOXAN
SY - CLOFENOTANE
SY - AAVERO-EXTRA
SY - CHLORPHENOTHAN
SY - DEOVAL
SY - MUTOXAN
SY - PEB1
SY - PENTICIDUM
SY - DODAT
SY - BOSAN SUPRA
SY - BOVIDERMOL
SY - IVORAN
SY - CHLORPHENOTOXUM
SY - PARACHLOROCIDUM
SY - DIBOVIN

93. 4,4'-DDE

RN - 72-55-9
MF - C14-H8-CL4
N1 - ETHYLENE, 1,1-DICHLORO-2,2-BIS(P-CHLOROPHENYL)- (8CI)
N1 - BENZENE, 1,1'-(DICHLOROETHENYLIDENE)BIS(4-CHLORO- (9CI)
SY - 1,1-DICHLORO-2,2-BIS(P-CHLOROPHENYL)ETHYLENE
SY - DDE
SY - P,P'-DDE
SY - P,P'-DICHLORODIPHENYLDICHLOROETHYLENE
SY - 1,1-DICHLORO-2,2-DI(P-CHLOROPHENYL)ETHYLENE
SY - 4,4'-DDE
SY - 2,2-BIS(4-CHLOROPHENYL)-1,1-DICHLOROETHYLENE

94. 4,4'-DDD

RN - 72-54-8
MF - C14-H10-CL4
N1 - ETHANE, 1,1-DICHLORO-2,2-BIS(P-CHLOROPHENYL)- (8CI)
N1 - BEZENE, 1,1'-(2,2-DICHLOROETHYLIDENE)BIS(4-CHLORO- (9CI)
SY - ME1700
SY - 1,1-BIS(P-CHLOROPHENYL)-2,2-DICHLOROETHANE
SY - 1,1-BIS94-CHLOROPHENYL)-2,2-DICHLOROETHANE
SY - DDD
SY - P,P'-DDD
SY - 1,1-DICHLORO-2,2-BIS(P-CHLOROPHENYL)ETHANE
SY - DICHLORODIPHENYL DICHLOROETHANE
SY - P,P'-DICHLORODIPHENYLDICHLOROETHANE
SY - DILENE
SY - RHOTHANE
SY - TDE
SY - 2,2-BIS(P-CHLOROPHENYL)-1,1-DICHLOROETHANE
SY - P,P'-DICHLORODIPHENYL-2,2-DICHLOROETHYLENE
SY - 4,4'-DDD
SY - 2,2-BIS(4-CHLOROPHENYL)-1,1-DICHLOROETHANE
MH - *DICHLORODIPHENYLDICHLOROETHYLENE/(MAJOR 74)

*ENDOSULFAN AND METABOLITES

95. A-ENDOSULFAN-ALPHA

RN - 115-29-7
ON - SEE ALSO: 8003-45-0
MF - C9-H6-CL6-O3-S
N1 - 5-NORBORNENE-2,3-DIMETHANOL, 1,4,5,6,7,7-HEXACHLORO-, CYCLIC SULFITE (8CI)
N1 - 6,9-METHANO-2,4,3-BENZODIOXATHIEPIN, 6,7,8,9,10,10-HEXACHLORO-1,5,5A,6,9,9A-HEXAHYDRO-, 3-OXIDE (9CI)

A-ENDOSULFAN-ALPHA (Con't)

SY - OMS 570
SY - HOE 2,671
SY - BIO 5,671
SY - ENT 23,979
SY - NIAGARA 5,462
SY - ENDOSULFAN
SY - THIODAN
SY - MALIX
SY - SD 4314
SY - ENDOSULFAN 35EC
SY - CHLORTHIEPIN
SY - ENDOSULPHAN
SY - BEOSIT
MH - *ENDOSULFANE/(MINOR 72)/(MAJOR 74)

96. B-ENDOSULFAN-BETA

CHEMLINE has no information on this chemical.

97. ENDOSULFAN SULFATE

RN - 6749-25-3
ON - SEE: 1031-07-8
MF - C9-H6-CL6-O4-S
N1 - 5-NORBORNENE-2,3-DIMETHANOL, 1,4,5,6,7,7-HEXACHLORO-, CYCLIC SULFATE (8CI)
SY - ENDOSULFAN SULFATE

RN - 1031-07-8
ON - SEE ALSO: 6749-25-3
MF - C9-H6-CL6-O4-S
N1 - 5-NORBORNENE-2,3-DIMETHANOL, 1,4,5,6,7,7-HEXACHLORO-, 3,3-DIOXIDE (9CI)
SY - ENDOSULFAN SULFATE
SY - THIODAN SULFATE

*ENDRIN AND METABOLITES

98. ENDRIN

RN - 72-20-8
ON - SEE ALSO: 8072-14-8
ON - SEE ALSO: 12715-94-5
ON - SEE ALSO: 16386-25-7

ENDRIN (Con't)

ON - SEE ALSO: 16850-17-2
ON - SEE ALSO: 17578-52-8
ON - SEE ALSO: 18466-93-8
ON - SEE ALSO: 25320-73-4
MF - C12-H8-CL6-O
N1 - 1,4:5,8-DIMETHANONAPHTHALENE,
1,2,3,4,10,10-HEXACHLORO-6,7-EPOXY-1,4,4A,5,6,7,8,8A-OCTAHYDRO-, ENDO,ENDO- (8CI)
N1 - 2,7:3,6-DIMETHANONAPHTH(2,3-B)OXIRENE,
3,4,5,6,9,9-HEXACHLORO-1A,2,2A,3,6,6A,7,7A-OCTAHYDRO-,
(1AALPHA,2BETA,2ABETA,3ALPHA,6ALPHA,6ABETA,7BETA,
7AALPHA)- (9CI)
SY - ENDRIN
SY - EXPERIMENTAL INSECTICIDE 269
SY - MENDRIN
SY - COMPD. 269
SY - SD 3419
SY - EN 57
SY - ENDRICOL
SY - OKTANEX
SY - ENDREX

99. ENDRIN ALDEHYDE

RN - 7421-93-4
MF - C12-H8-CL6-O
N1 - 1,2,4-METHENOCYCLOPENTA(CD)PENTALENE-5-CARBOXALDEHYDE,
2,2A,3,3,4,7-HEXACHLORODECAHYDRO-,
(1ALPHA,2BETA,2ABETA,4BETA,4ABETA,5ALPHA,6ABETA,
6BBETA,7R*)- (9CI)
SY - ENDRIN ALDEHYDE
SY - SD 7442

*HEPTACHLOR AND METABOLITES

100. HEPTACHLOR

RN - 76-44-8
ON - SEE ALSO: 23720-59-4
ON - SEE ALSO: 37229-06-4
MF - C10-H5-CL7
N1 - 4,7-METHANOINDENE,
1,4,5,6,7,8,8-HEPTACHLORO-3A,4,7,7A-TETRAHYDRO- (8CI)
N1 - 4,7-METHANO-1H-INDENE,
1,4,5,6,7,8,8-HEPTACHLORO-3A,4,7,7A-TETRAHYDRO- (9CI)

HEPTACHLOR (Con't)

SY - E 3314
SY - ENT 15,152
SY - HEPTACHLOR
SY - VELSICOL 104
SY - AGROCERES
SY - HEPTACHLORANE
SY - RHODIACHLOR
SY - 3-CHLOROCHLORDENE
SY - AAHEPTA
AY - GPKH
SY - HEPTA
MH - *HEPTACHLOR/(MAJOR 73)

101. HEPTACHLOR EPOXIDE

RN - 1024-57-3
ON - SEE ALSO: 4067-30-5
ON - SEE ALSO: 23730-62-9
ON - SEE ALSO: 24717-72-4
MF - C10-H5-CL7-O
N1 - 4,7-METHANOINDAN,
1,4,5,6,7,8,8-HEPTACHLORO-2,3-EPOXY-3A,4,7,7A-TETRAHYDRO- (8CI)
N1 - 2,5-METHANO-2H-INDENO(1,2-B)OXIRENE,
2,3,4,5,6,7,7-HEPTACHLORO-1A,1B,5,5A,6,6A-HEXAHYDRO- (9CI)
SY - ENT 25,584
SY - VELSICOL 53-CS-17
SY - HCE
SY - HEPTACHLOR EPOXIDE
SY - EPOXYHEPTACHLOR

*HEXACHLOROCYCLOHEXANE (All isomers)

102. A-BHC-ALPHA

RN - 319-84-6
ON - SEE ALSO: 20437-97-2
MF - C6-H6-CL6
N1 - CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, ALPHA- (8CI)
N1 - CHCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-,
(1ALPHA, 2ALPHA,3BETA,4ALPHA,5BETA,6BETA)- (9CI)
SY - ALPHA-BHC
SY - ALPHA-HEXACHLOROCYCLOHEXANE
SY - ALPHA-1,2,3,4,5,6-HEXACHLOROCYCLOHEXANE
SY - ALPHA-LINDANE
SY - ALPHA-HEXACHLORAN
SY - ALPHA-BENZENE HEXACHLORIDE
SY - ALPHA-HCH
SY - ALPHA-HEXACHLORANE
SY - ALPHA-HEXACHLORCYCLOHEXANE
SY - ALPHA-1,2,3,4,5,6-HEXACHLORCYCLOHEXANE

103. B-BHC-BETA

RN - 319-85-7
MF - C6-H6-CL6
Nl - CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, BETA- (8CI)
Nl - CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-,
(1ALPHA,2BETA,3ALPHA,4BETA,5ALPHA,6BETA)- (9CI)
SY - BETA-BHC
SY - BETA-HEXACHLOROCYCLOHEXANE
SY - BETA-1,2,3,4,5,6-HEXACHLOROCYCLOHEXANE
SY - BETA-LINDANE
SY - BETA-BENZENE HEXACHLORIDE
SY - BETA-HCH
SY - BETA-HEXACHLOROBENZENE

104. R-BHC (LINDANE)-GAMMA

RN - 58-89-9
ON - SEE ALSO: 8007-42-9
ON - SEE ALSO: 8073-23-2
ON - SEE ALSO: 25897-48-7
ON - SEE ALSO: 53529-37-6
MF - C6-H6-CL6
Nl - CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, GAMMA- (8CI)
Nl - CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-,
(1ALPHA, 2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)- (9CI)
SY - TRI-6
SY - ENT 7,796
SY - AFICIDE
SY - AGROCIDE
SY - AGROCIDE III
SY - AGROCIDE WP
SY - APARASIN
SY - APHTIRIA
SY - BBH
SY - BEN-HEX
SY - GAMMA-BENZENE HEXACHLORIDE
SY - BEXOL
SY - BHC
SY - GAMMA BENZENE HEXACHLORIDE
SY - GAMMA-BHC
SY - GAMMA-HCH
SY - GEXANE
SY - HEXACHLORAN
SY - HEXACHLORANE
SY - GAMMA-1,2,3,4,5,6-HEXACHLOROCYCLOHEXANE
SY - GAMMA- HEXACHLOROCYCLOHEXANE
SY - HGI
SY - JACUTIN
SY - KWELL
SY - LINDANE
SY - GAMMA-LINDANE
SY - LOREXANE

R-BHC (LINDANE)-GAMMA (Con't)

SY - GAMMA-BHC
SY - STREUNEX
SY - PEDRACZAK
SY - TAP 85
SY - GAMACID
SY - BENTOX 10
SY - HCH
SY - LENTOX
SY - LINTOX
SY - GAMMA-HCH
SY - SANG-GAMMA
SY - GAMMEXANE
SY - ARBITEC
SY - KOKOTINE
SY - GAMMALIN 20
SY - HCCH
SY - LINDATOX
SY - LIDENAL
SY - GAMMALIN
SY - LENDINE
SY - MSZYCOL
SY - NEXIT-STARK
SY - NICOCHLORAN
SY - GAMMA-HEXACHLORAN
SY - GAMMA-HEXACHLORANE
SY - GAMMA-HEXACHLOROBENZENE
SY - 1,2,3,4,5,6-HEXACHLOROCYCLOHEXANE
SY - CODECHINE
SY - LINDOSEP
SY - HORTEX
SY - ENTOMOXAN
SY - 666
SY - DBH
SY - HEXYCLAN
SY - OMNITOX
SY - QUELLADA
SY - ISOTOX
SY - HECLOTOX
SY - DOL GRANULE
SY - QWADZIAK
SY - NEXIT
SY - BENZENE HEXACHLORIDE
SY - OVADZIAK
SY - AALINDAN
SY - APLIDAL
SY - AMEISENMITTEL MERCK
SY - AMEISENTOD
SY - CELANEX
SY - DETMOL-EXTRAKT
SY - DRILLTOX-SPEZIAL AGLUKON
SY - HEXA

105. G-BHC-DELTA

RN - 319-86-8
MF - C6-H6-CL6
N1 - CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, DELTA- (8CI)
N1 - CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-,
(1ALPHA,2ALPHA,3ALPHA,4BETA,5ALPHA,6BETA)- (9CI)
SY - DELTA-BHC
SY - DELTA-HEXACHLOROCYCLOHEXANE
SY - DELTA-1,2,3,4,5,6-HEXACHLOROCYCLOHEXANE
SY - DELTA-LINDANE
SY - DELTA-HCH
SY - DELTA-BENZENE HEXACHLORIDE
SY - DELTA-(AEEEE)-1,2,3,4,5,6-HEXACHLOROCYCLOHEXANE

*POLYCHLORINATED BIPHENYLS (PCB's)

106. PCB-1242 (AROCHLOR 1242)

RN - 11104-29-3
ON - SEE: 53469-21-9
MF - EXACT COMPOSITION UNKNOWN OR UNDETERMINED
N1 - AROCLOR 1242 (9CI)
SY - AROCHLOR 1242

107. PCB-1254 (AROCHLOR 1254)

RN - 11097-69-1
MF - EXACT COMPOSITION UNKNOWN OR UNDETERMINED
N1 - AROCLOR 1254 (9CI)
SY - AROCHLOR 1254
SY - PCB 1254

108. PCB-1221 (AROCHLOR 1221)

RN - 11104-28-2
MF - EXACT COMPOSITION UNKNOWN OR UNDETERMINED
N1 - AROCLOR 1221 (9CI)
SY - AROCHLOR 1221

109. PCB-1232 (AROCHLOR 1232)

RN - 11141-16-5
MF - EXACT COMPOSITION UNKNOWN OR UNDETERMINED
N1 - AROCLOR 1232 (9CI)

110. PCB-1248 (AROCHLOR 1248)

RN - 12672-29-6
MF - EXACT COMPOSITION UNKNOWN OR UNDETERMINED
N1 - AROCLOR 1248 (9CI)

111. PCB-1260 (AROCHLOR 1260)

RN - 11096-82-5
MF - EXACT COMPOSITION UNKNOWN OR UNDETERMINED
N1 - AROCLOR 1260 (9CI)
SY - AROCHLOR 1260
SY - PCB 1260

112. PCB-1016 (AROCHLOR 1016)

RN - 12674-11-2
MF - EXACT COMPOSITION UNKNOWN OR UNDETERMINED
N1 - AROCLOR 1016 (9CI)

113. *TOXAPHENE

RN - 8001-35-2
ON - SEE ALSO: 8022-04-6
ON - SEE ALSO: 12687-42-2
ON - SEE ALSO: 12698-98-5
ON - SEE ALSO: 12770-20-6
ON - SEE ALSO: 37226-11-2
MF - EXACT COMPOSITION UNKNOWN OR UNDETERMINED
N1 - TOXAPHENE (9CI)
SY - ALLTOX
SY - CHLORINATED CAMPHENE
SY - GENIPHENE
SY - PENPHENE
SY - PHENACIDE
SY - PHENATOX
SY - TOXAKIL
SY - POLYCHLOROCAMPHENE
SY - TOXYPHEN
SY - MELIPAX
SY - HERCULES 3956
SY - TOXAPHEN
SY - ESTONOX
SY - CAMPHECHLOR
SY - CAMPHOCHLOR
SY - KAMFOCHLOR
MH - TOXAPHENE/(MINOR IN 75)

114. *ANTIMONY (TOTAL)

RN - 7440-36-0
MF - SB
N1 - ANTIMONY (9CI)
SY - C.I. 77050
SY - STIBIUM

115. *ARSENIC (TOTAL)

RN - 7440-38-2
ON - SEE ALSO: 14798-06-2
ON - SEE ALSO: 29288-11-7
ON - SEE ALSO: 39277-51-5
MF - AS
N1 - ARSENIC (9CI)
SY - ARSENIC-75
SY - ARSENIC BLACK

116. *ASBESTOS (FIBROUS)

RN - 1332-21-4
ON - SEE ALSO: 12413-45-5
MF - EXACT COMPOSITION UNKNOWN OR UNDETERMINED
Nl - ASBESTOS (9CI)
SY - ASBESTOS FIBER

117. *BERYLLIUM (TOTAL)

RN - 7440-41-7
ON - SEE ALSO: 14798-09-5
ON - SEE ALSO: 17054-11-4
MF - BE
Nl - BERYLLIUM (9CI)
SY - GLUCINIUM
SY - BERYLLIUM-9

118. *CADMIUM (TOTAL)

RN - 7440-43-9
MF - CD
Nl - CADMIUM (9CI)
SY - C.I. 77180

119. *CHROMIUM (TOTAL)

RN - 7440-47-3
MF - CR
Nl - CHROMIUM (9CI)

120. *COPPER (TOTAL)

RN - 7440-50-8
ON - SEE ALSO: 12711-87-4
MF - CU
Nl - COPPER (9CI)
SY - C.I. 77400
SY - ALLBRI NATURAL COPPER
SY - BRONZE POWDER
SY - C.I. PIGMENT METAL 2
SY - 1721 GOLD
SY - M 2
SY - M3S
SY - RANEY COPPER
SY - LCU
SY - M 3
SY - M 4
SY - M 1
SY - COPPER M 1
SY - ARWOOD COPPER
SY - CDA 122

*COPPER (TOTAL) (Con't)

SY - CDA 110
SY - CDA 102
SY - CU M3
SY - KAFAR COPPER
SY - M1 (COPPER)
SY - M2 (COPPER)
SY - M3 (COPPER)
SY - M4 (COPPER)
SY - COPPER POWDER
SY - ANAC 110
SY - CDA 101

121. *CYANIDE (TOTAL)

RN - 57-12-5
ON - SEE ALSO: 20693-73-6
MF - C-N
N1 - CYANIDE (9CI)
SY - CYANIDE ION
SY - HYDROCYANIC ACID, ION(1-)
SY - CYANIDE ANION
SY - CARBON NITRIDE ION (CN(1-))
SY - CYANIDE (CN(1-))
SY - ISOCYANIDE
SY - CYANIDE(1-)
SY - CYANIDE(1-) ION
SY - CYANIDE RADICAL

122. *LEAD (TOTAL)

RN - 7439-92-1
MF - PB
N1 - LEAD (9CI)
SY - C.I. 77575
SY - C.I. PIGMENT METAL 4
SY - LEAD FLAKE
SY - LEAD S2
SY - S0
SY - S1
SY - KS-4

123. *MERCURY (TOTAL)

RN - 7439-97-6
ON - SEE ALSO: 8030-64-6
ON - SEE ALSO: 43233-72-3
ON - SEE ALSO: 51887-47-9
MF - HG
N1 - MERCURY (9CI)
SY - QUICKSILVER
SY - QUECKSILBER

124. *NICKEL (TOTAL)

RN - 7440-02-0
ON - SEE ALSO: 8049-31-8
ON - SEE ALSO: 17375-04-1
ON - SEE ALSO: 39303-46-3
ON - SEE ALSO: 53527-81-4
MF - NI
Nl - NICKEL (9CI)
SY - C.I. 77775
SY - RANEY NICKEL
SY - NI 270
SY - NICKEL NP2
SY - NICKEL 270
SY - NP 2
SY - RANEY ALLOY
SY - RCH 55/5
SY - NI-4303T
SY - NI 0901-S (HARSHAW)

125. *SELENIUM (TOTAL)

RN - 7782-49-2
ON - SEE ALSO: 11125-23-8
ON - SEE ALSO: 11133-88-3
ON - SEE ALSO: 12640-29-8
ON - SEE ALSO: 12641-96-2
ON - SEE ALSO: 12733-65-2
ON - SEE ALSO: 37256-19-2
ON - SEE ALSO: 37258-85-8
ON - SEE ALSO: 37276-15-6
MF - SE
Nl - SELENIUM (9CI)
SY - C.I. 77805

126. *SILVER (TOTAL)

RN - 7440-22-4
MF - AG
Nl - SILVER (9CI)
SY - C.I. 77820
SY - ARGENTUM
SY - SHELL SILVER
SY - SILVER ATOM
SY - SILFLAKE 135
SY - L 3

127. *THALLIUM (TOTAL)

RN - 7440-28-0
MF - TL
Nl - THALLIUM (9CI)
SY - RAMOR

128. *ZINC (TOTAL)

RN - 7440-66-6
ON - SEE ALSO: 12793-53-2
MF - ZN
Nl - ZINC (9CI)
SY - BLUE POWDER

129. **2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD)

RN - 1746-01-6
ON - SEE ALSO: 56795-67-6
MF - C12-H4-CL4-O2
Nl - DIBENZO-P-DIOXIN, 2,3,7,8-TETRACHLORO- (8CI)
Nl - DIBENZO(B,E) (1,4)DIOXIN, 2,3,7,8-TETRACHLORO- (9CI)
SY - 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN
SY - TCDBD
SY - 2,3,7,8-TETRACHLORODIBENZO_1,4-DIOXIN
SY - DIOXIN (HERBICIDE CONTAMINANT)
SY - TCDD
MH - CHLOROBENZENES/(74)
MH - TETRACHLORODIBENZODIOXIN/(MINOR 75)
MH - HYDROCARBONS, HALOGENATED/(72-73)
MH - DIOXINS/(72-73)

*Specific compounds and chemical classes as listed in the consent degree.

**This compound was specifically listed in the consent degree. Because of the extreme toxicity (TCDD). We are recommending that laboratories NOT acquire analytical standard for this compound.